DOCUMENT RESUME

ED 300 800 CS 009 411

AUTHOR Ward, Geoff
TITLE I've Got a Project on...
INSTITUTION Primary English Teaching Association, Rozelle (Australia).
REPORT NO ISBN-0-909955-83-2
PUB DATE Oct 88
NOTE 94p.
PUB TYPE Books (010) -- Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS *Class Activities; Elementary Education; *English Instruction; *Experiential Learning; Foreign Countries; Language Arts; Plagiarism; *Research Skills; *Student Projects; Student Research
IDENTIFIERS Australia

ABSTRACT

Intended to help teachers and others to think through their roles in assisting children to become more effective learners, this book focuses on the contribution which project studies can make to that objective. The book is divided into (1) "Types of Projects"; (2) "Starting Out"; (3) "Relating Projects to Other Experiences"; (4) "The Role of Parents"; (5) "Facing Up to Plagiarism"; (6) "Developing Children's Research Skills; (7) "Getting Clear about Projects"; (8) "Teaching Processing Skills"; and (9) "Managing Projects." (MS)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

M. Carr

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED300800

I'VE GOT A PROJECT ON . . .

I'VE GOT A PROJECT ON . . .

Geoff Ward

drawings by Reg Chapple

PRIMARY ENGLISH TEACHING ASSOCIATION

372 4

Max Fatchen's 'Help!' is reprinted from *A Paddock of Poems* (Omnibus/Puffin) by kind permission of the author.

ISBN 0 909955 83 2
Dewey 371.36
First published October 1988
Copyright © Primary English Teaching Association 1988
PO Box 167 Rozelle NSW 2039 Australia
Editor: J.V. Steele
Design consultant: Mark Jackson
Typeset in 11/13 Berkeley Old Style by Total Typography
67 Nelson Street Rozelle NSW 2039
Printed by Australian Print Group
76 Nelson Street Maryborough VIC 3465

Contents

	Introduction	1
1	Types of Projects	4
2	Starting Out	10
3	Relating Projects to Other Experiences	17
4	The Role of Parents	25
5	Facing up to Plagiarism	30
6	Developing Children's Research Skills	34
7	Getting Clear about Projects	42
8	Teaching Processing Skills	59
9	Managing Projects	79
	References	85

Help!

Any magazines
With scenes
Or information
On transportation,
population,
inflation,
marine parks,
or sharks?
Any clues
or news
on political views
Or Who's Who's?

Anything about
statistics,
national characteristics,
mountain ranges,
climatic changes,
hiking
or the Viking?

Any slides
on tides,
wading birds,
herds
or Kurds?

What about
The race
in space,
flora,
or an aurora?

Any files
on crocodiles?

If you haven't looked
For goodness' sake, DO!

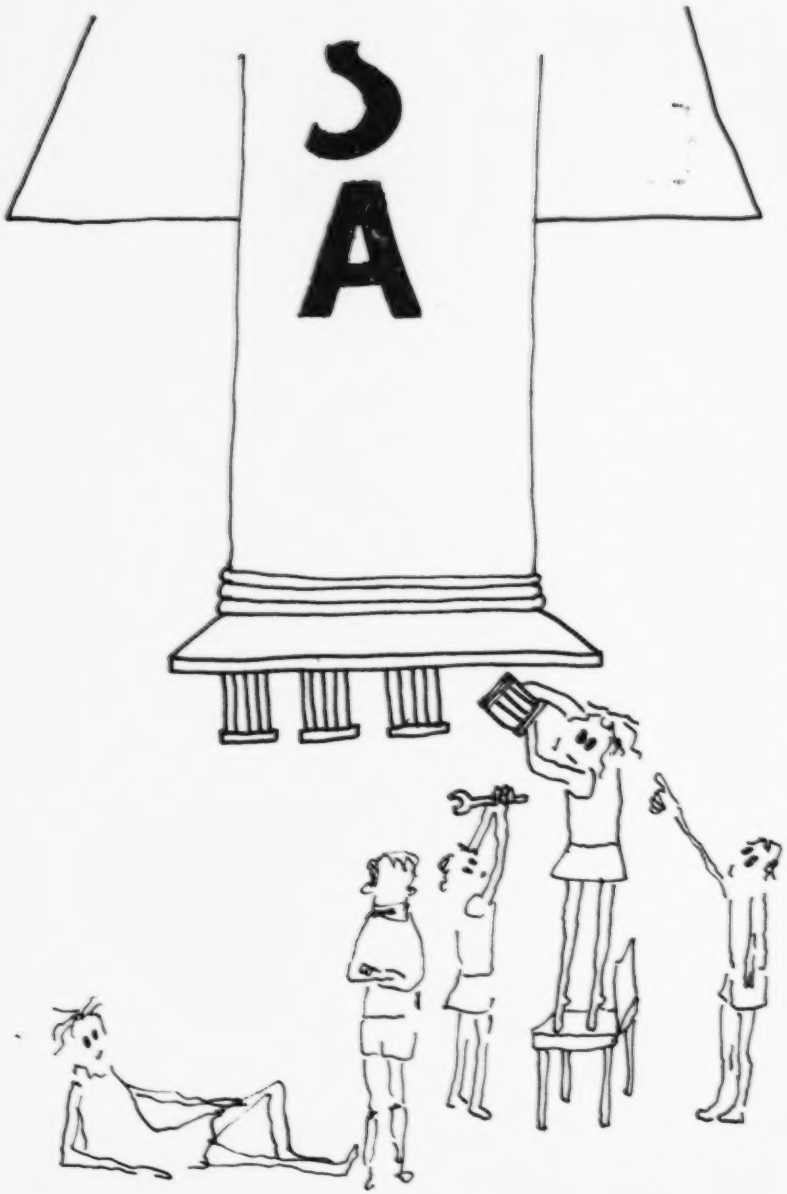
On Friday morning
My project's due.

Max Fatchen

Introduction

Why do teachers ask children to do projects? I've been asking that question for some time now and I've collected some fascinating reasons. They range from, 'I always liked doing them when I was at school,' to a list of objectives so grand and impressive that one couldn't help feeling that with a couple of such projects behind them, our leaders could solve the problems of the world overnight. The very name 'project' commands a long list of dictionary definitions and as many variations in the way that teachers employ it. I prefer to accept the idea of a versatile term and to write of many different types of project rather than try to specify different terms for different but related activities. After all, there's no way one could get consensus on just what is and is not a project.

The term 'project' is generally used to describe tasks which people undertake when they seek to achieve something substantial or personally satisfying. A project usually has an ongoing nature with a clear goal, so that it is possible to recognise when it is completed. The task of developing the atom bomb was called the Manhattan Project. And a person asked what her current project is might answer that it is building a pergola. Thus the project task may be to accomplish something never done before, where the means to the end are not necessarily known, or it may involve the use of materials already prepared to perform a task done successfully by many before. Whatever the form of the project, it is likely to incorporate a level of challenge which induces interest but is capable of being met. Whether it is an individual or a team effort, it usually requires and encourages a high level of independence in the work, though it may be supported in appropriate ways by expert help from outside. The outcomes of a project are usually observable, but the people who undertake them often speak of what they have achieved additionally in terms of learning new skills or gaining emotional satisfaction.



10

These general features of the use of the term 'project' outside classrooms seem to me to carry implications which we would be wise to incorporate when we apply the notion to educational settings. Thus a project should

- have definable objectives such that their achievement can be recognised
- have a purpose that is accepted as worthwhile by the child or children
- involve the learner in an ongoing way in meeting a succession of challenges that can be handled with a reasonable level of success
- encourage independence in the individual or group undertaking the task, although provision for support is made
- lead to gains in children's skills and attitudes and not just to a display of work completed.

All of this obviously means that projects can be seen to be 'A GOOD THING' and all children ought to be doing them. Sadly, however, enthusiasm for projects does not always match up to their potential. While they can be a great way of developing children's language and thinking skills and can encourage excellent and enduring independent habits, they are among the most abused and ill-considered aspects of schooling. Often they are too vague and purposeless to be worth doing. Children may be unsure what is required of them and lack the skills to produce the results, even if they know what they should be. Parents are put under pressure to provide information and skills which they often do not have themselves, leading to tension in the home and in home/school relations. Emphasis is often placed on the surface characteristics of the end product, and far from developing independent study skills and thinking, children may learn to depend on the work of others rather than risk being inadequate in other ways.

All of this obviously means that projects can be seen to be 'A BAD THING' and all children should be protected from them. Fortunately, however, the great majority of teachers will come to terms with what is needed to make the use of projects constructive and valuable in the classroom if they are confronted with the issues involved. This book aims to help teachers and others to think through their roles in assisting children to become more effective learners, and to see more clearly the contribution which project studies can make to that objective.

CHAPTER ONE

Types of Projects

As I suggested in the Introduction, projects range widely – from inventing weapons of mass destruction to completing some domestic task. While school projects may not encompass quite such a range, they do and should vary greatly. One of the difficulties which children may have with projects is that they so often appear to be dauntingly long and complex. Children often cannot get an overview of what they are trying to achieve and see the task as too difficult or unmanageable. Thus it's important to provide variety in project experiences, so that children can experience both new types of project and the advantage of being able to work on several projects that are similar in type, enabling them to widen both their awareness of what is possible and their awareness of what they can achieve themselves.

Some projects can be very brief, both in time allowed and quantity of work expected. Miniprojects can be presented on a single small sheet of paper, providing a summary of information or answers to a circumscribed question. A class set of miniproject biographies gives the children an introduction to many important lives without the need to handle a huge amount of data. Showing the class the amount of space that needs to be filled in such a project may put the emphasis on the end product, but it has an advantage in motivating the children to complete the work because they can see how achievable the result is. Nevertheless, there will still be some children who do not face up well even to something as constrained as that. Doing several miniprojects in close succession is a help in overcoming this insecurity or inefficiency.

Other projects need to be more substantial in terms of what is expected of the children. Where possible these longer ones should be broken down into subsections to avoid children feeling overwhelmed.

Evaluation is a continuous part of work on projects and should be done in such a way that children learn from one project how to improve their approach for the next one. Perhaps they need to work in a different style with a more systematic breakdown of steps. The feedback from

one project evaluation is of little advantage unless the children tackle another one which enables them to put that information to use. Teachers probably need to discuss the lessons learnt with any child who has had difficulties, in order to identify those that can be applied to the next task and to negotiate personal goals.

The negative experiences that some children have had with projects often lead to dislike of project work, and the children feel both reluctant and insecure. It is asking too much to expect a child with this attitude to wait for a complete project to be achieved at a better level before obtaining positive results. Overcoming dislike of projects is better managed through a systematic build-up of success with requirements within a project. By setting intermediate goals with children, so that they can see when they are meeting the goals on the way to completing the project, you have scope for praising a child's effort even if the end product is not remarkably good. The gains resulting from this approach can be parlayed into more success in the next project if similar skills are needed, or if the teacher helps the child to see what changes in procedures are needed for the next type.

Often it seems as if projects are done for the sake of doing a project rather than for the content and the learning that results. But projects should be used in consort with the rest of the curriculum program, and that is perhaps the most important factor in choosing what type to use. Projects may arise out of social studies units when some aspects of a unit are selected for children to cover separately, in order to add to the overall coverage of content. Ideally, many projects will arise as investigations of points of interest that occur during a wider study. In such instances the project may be nothing more than a homework assignment to find out the answer to a question which couldn't be answered in class time. However, not every home has the resources to deal with such questions, and teachers should be sensitive to this so that parents and children do not overreact to being unable to answer the questions. Parents need to know that in such instances you are pooling information gained from those who can obtain it. No child should be disadvantaged by a lack of resources at home for work originating at school.

The concept of 'investigating' is central to modern approaches to science in primary schools and is a very useful approach to formulating projects, not only in science but in other curriculum areas as well. Harrison and Allport (1987) outline steps they have used in developing

investigations in an interactive science approach which also focuses on language strategies. They suggest as step one that the selection of topics comes from:

- the children's interests — arising from questions that spark off wider interest
- from the teacher's program — to provide balance across the science curriculum
- from topics that arise spontaneously at particular times of the year (such as growth in Spring).

The next step is to find out what the children's understandings of the topic are. Open-ended questions can identify instances or non-instances of the topic and the language which is associated with it. Often clarifying the language involved is the main part of the investigation. Step three is to collect resources. Harrison and Allport suggest that although resources could be gathered earlier, to do so may limit the directions of the children's investigations by suggesting that the material on hand is the only appropriate resource. They recommend a fourth step of several activities 'to develop and clarify the children's repertoire of experience about a topic.' The chapter below on 'Relating Projects to Other Experiences' explores some examples of this process.

The fifth step is to elicit questions that lead to investigations. Teachers often find that the questions which children generate themselves are very restrictive in scope. Learning to ask investigator's questions is fundamental to selecting project topics that are practicable and worthwhile. Harrison and Allport suggest the use of specific question starters, such as 'Can...? Does...? If...? What happens when...? etc.' As they point out, learning to discriminate between investigative and non-investigative questions is an important skill and leads to the ability to construct one's own open-ended questions. The final step is to turn the investigative questions into investigations. This involves setting the problem or aim, establishing how the work is to be done (the method), gathering the equipment needed, forming predictions or hypotheses, determining the results, and concluding with final judgements and reports. Each step requires appropriate language to undertake the task, and developing children's abilities to use that language will be a major part of the teacher's role in any investigation.

Obviously these steps in setting up science investigations can be applied to projects in other curriculum areas, for investigation will be

the basis of most projects. Exceptions occur when children get the opportunity to report on things that they already know, though even then they will probably need to widen their knowledge by investigating new issues. What you already know is the starting point, not the conclusion, of a study.

One of the ways in which investigations may develop out of class work is when a book or other text provokes the teacher or a child to

initiate a study which applies information in the text. There are countless such opportunities, but one example would be Donald Hall's *Ox-Cart Man*, in which the skilfully crafted text creates a picture of pioneering life in New England, USA, in the early 1800s. The detailed and well-researched illustrations by Barbara Cooney extend and clarify that picture. A teacher, after hooking the children in to be fascinated by the details of the life depicted in the book, might ask, 'I wonder how that compares with the life of pioneers in our area? Were they as self-sufficient? Did they have journeys to sell their excess produce like the ox-cart man's? How could we find out?' This must be one of the most effective ways of approaching social studies topics and setting up productive investigations that will lead to individual, group or class projects.

Other projects will arise from exploiting opportunities offered by the school district, either by bringing artifacts or people into the classroom to stimulate interest, or by taking the class out on an excursion to see and study some local feature of interest. When this is done, the activity must be properly prepared and real questions must be investigated and answered. Audio or videotape recordings, photographs and notes are needed to provide material to analyse and record the activity.

One of the most interesting examples of this type of project that I have used began when a sign went up in front of a building across the road from our school saying that the building was soon to be demolished to make way for a new office block. Step by step we followed the entire process, recording it in photographs and children's observational drawings, in audiotapes and summary transcriptions of interviews, in record log details and in various forms of expository and narrative text. We learnt much about demolition and building, and about economic planning and management from progressively interviewing the people involved in the project over the best part of a year. Apart from all the other advantages, it was good preparation for doing a similar project the following year when they tore down and rebuilt our school around us!

Whatever types of projects are undertaken, they should be interesting to the children. Allowing children to choose their own topics may help to gain and retain their interest, though there is a danger that doing the project then becomes the focus, rather than what will be learnt.

Projects should integrate learning across aspects of the curriculum. There simply isn't time in a school program to do justice to every part

of the curriculum. One way of partially overcoming this is to make one aspect dominant for a period of time and to ensure that real gains are made in that area before giving it a 'fallow' period. Science, social studies and art are examples of subjects that I believe can benefit from intensive periods of study on occasion. Generally the effect is to use up your allocation of time for a while, so that you devote less than your average allotment until the balance with other areas of the curriculum is restored. However, it's better to avoid a burst followed by nothing at all. Projects are an effective way of concentrating work in one area. They have the great advantage that you can set them in motion with an intensive period of study to build up background information, and then leave the work in that area to the ongoing progress of the children through their projects, so that although you are not using up teaching time the subject area is still being covered.

The other way of dealing with the overcrowding of the curriculum is to overlap subject areas, so that what you do in one area is benefitting another. Doing cloze passages or other reading/language activities on science, social studies or health topics is an example of this. Again, the project is a valuable way of not only obtaining overlap but of showing the proper integration of ideas and information which we so often hive off arbitrarily into particular subjects. Doing science or maths, for instance, is dependent on language skills. We need to select types of projects that will make our programs more manageable, as well as more interesting and effective.

CHAPTER TWO

Starting Out

What children do in tackling projects is governed by their experience. I've just had a graphic illustration of what this means because in the pause since completing the last sentence I've helped my Year 11 son to a plausible explanation of a cryptic comment in a book he had to write about for his English teacher. Although I hadn't read any of the text, I was, by asking him questions, able to piece together enough of it to hazard a hypothesis about what the character's statement 'meant'. I had to elicit more detail than my son thought was relevant, but when he had decided that my notion made sense, he could accept that I was seeing important connections in the text which he had glossed over. My advantage is that I have more experience of making such connections than he has. I could consider a wider range of possibilities for the ambiguous text, but I also sensed something of the nature of the writing which suggested an interpretation deeper than he had considered. Of course in leading him through the questions I also modelled a way of approaching the problem which will help him in future tasks. Tackling a project likewise involves bringing to bear your understanding not only of the topic, but also of the nature of the project task.

If children are to engage usefully in project work, teachers must ensure that their understanding of what they are doing is not unduly limited by previous experiences. Unless you teach them otherwise, most children will see a project in terms of what is handed in at the end. A child is almost certain to think of doing a project in such a way as to be able to say things like, 'I can't find my project. It was in my desk and now it's gone.' While it doesn't make sense to deprive the term 'project' of this product aspect of its meaning, it is vital that learners come to

see wider implications in using the term. The project includes the work and thinking that goes into the production. Learners need to realise that their abandoned ideas are important parts of learning too. Gathering notes, planning ways of presenting work, and drafting writing or illustrations are just as much a part of the project as is the finished product. Less obviously, the sidetracks and the wasted time are also part of a project. What we put into it is only partly represented by the hard copy at the end.

Unless we help children to see that a project is more than the end product, we are likely to condemn them to go on getting less from the task than they should. Doing a project ought to lead to new learnings, not only about the topic of study but about oneself as a student. I should learn more from writing this book than you will from reading it, even if it includes much that you haven't thought about before, because I will have engaged in much more thinking while producing it than you will find in the end product.

To achieve this change of understanding, teachers need to have deliberate strategies for change. An explanation of how you see the role of projects in the flow of class work will have some effect, but it is not likely to be sufficient to create a new and continuing understanding. That will only be attained by consistent attention to the processes of study.

Starting out the year

I would suggest that the first project for the year should be a whole class one, with the teacher modelling some of the techniques of effective study. Choose a topic relevant to some wider field of study that the class needs to work on. You might try negotiating the choice of topic with the class, but I would recommend leaving this aspect of project work till later. Learning to select a topic from an open field is in itself a difficult task and one which may be better managed after a successful experience in conducting a project. This first project is intended to make the children feel generally confident that they know how to go about such work and to provide the teacher with reference points for later explanations. 'Remember when we did that project on growing plants. What methods did we list for displaying our results? Would any of them be suitable for this task?'

The supportive approach to getting children started in new learnings can be called Context Support. The notion of Context Support is one

which Ronald Morris (1973) brought into the literature on learning to read. It has three major principles.

1. The message should already be in the mind of the learner.
2. Individual words are introduced only after they have been met in context.
3. Children first operate with maximum context support, which is gradually reduced as they are able to cope on their own.

Adaptations of these principles should underlie the entry of children into project work. The implications of the first principle are manifold. One is that children should begin doing projects with material that they already understand well. This will provide, in particular, freedom to explore ways of presenting information and reporting. Another implication is that children may begin with a clear understanding of what they are going to finish up with so that they can focus on how to obtain the information they need to fulfil their purposes. Having a clear understanding of the purposes because the teacher has established them in advance is yet another interpretation of knowing the message before starting.

If the 'individual words' of the second principle are seen as the parallel to needed skills or items of knowledge, then this second principle argues for teaching specifically at the point of need, when it becomes clear that some additional input will help, or when children have a sufficient grasp of the overall picture to focus on finer detail.

The third principle supports the notion of gradually increasing the expectations of independence in children's work. Thus children should first operate within the support of the teacher and others to perform defined tasks which contribute to the work as a whole.

The question of what to do when children already have a backlog of perhaps unsuccessful experiences with projects resolves into two related issues: one at the classroom level and one at the school level. At the school level there is the question of developing a school policy on the nature of project work so that there can be a consistent development of skills. Such a policy can indicate types of work and topics that will give teachers more security in planning, as well as leading to an affirmation of the importance of independent learning throughout the school. We will return to this issue shortly. At the classroom level, teachers need to make up their own minds about how to develop

independent learning in their children and how much support is needed for individual children at different stages of development. Principle 3 incorporates the idea that some children will need less support than others. Perhaps some are so clearly able to work independently from the beginning of the year that they could be separated from the rest of the class who are working with the teacher to learn. I have reservations about that, however, as the modelling effect of those children would be lost to the others. In addition, their apparent ability to work independently may in fact represent the worst features of the traditional orientation to the end product of project work. Don't assume that because children are self-motivated and independent workers, all the time which they put in will be teaching them new things. Many of the most amenable children are locked into repetitive procedures for pleasing the teacher in their work. Left to their own devices, they will blithely go on turning out beautiful, lightweight work without becoming more reflective or self-critical, and without learning metacognitive skills that will transfer to future project work.

Limiting children's level of independence for any length of time is an error with serious implications, for instructional dependence is both a symptom of inadequate approaches to learning and a self-fulfilling prophecy of frustration. Although many children happily depend on the teacher and have to wait for instructions before starting anything, many others do this very reluctantly. It is often a cause of tension that children who are highly independent outside class are constrained to do just what the teacher says in class and only when the teacher says to do it. Teachers might therefore consider the alternative idea of giving children free rein at the beginning of the year and observing them at work to identify those who need support and those who don't.

However, I don't think that the selection of approach needs to be as distinct as that. All children need some sort of support at some stage of their work and you must show sensitivity to the things they are trying to do and provide appropriate help. My suggestion is that in the early stages of project work, in particular, it is more realistic to think that you can supply the needed support when you have children working on circumscribed tasks and can form instructional groups or teach the same thing to all the class. As long as you don't stay locked into this procedure all the time, it is better to develop confidence from co-ordinated work and lead on to more diversity than to underestimate the level of support children need and get off to a bad start.

School policy on projects

I suggested above that there is value in schools having a clear policy on the use of projects. This requires much more than deciding whether or not they are to be used. The range of possible topics for projects is so vast that it seems a mistake to try to lay down which should be done at which class level. (However, some guidelines as to what is suitable at different levels should not only help teachers to identify topics but also reduce the likelihood of overlap.) The discussion among the staff leading to the formulation of a policy document might focus rather on identifying the types of behaviours that are appropriate for different classes, with an emphasis on the degree of complexity of tasks to be tackled and the outlining of a school-wide campaign to teach study skills. In many schools this policy could be overseen by the teacher librarian, who could teach some of the skills needed in library lessons, as well as providing resource support in both materials and teaching. I see this as in no way undermining or detracting from the other roles of teacher librarians, but as a proper use of their expertise.

Too few teachers appreciate how much support they should be able to get from the teacher librarian. Often the children are simply sent to the library to get books for their projects with no advance warning or preparation time for the librarian. Given notice of the teacher's intentions, many librarians can gather highly relevant material, make additional purchases when appropriate and prepare bibliographies or resource packages, as well as preparing to teach the specific skills needed to handle the tasks. In some schools this type of support operates easily and continually as teachers are fully aware of the librarian's skills and concerns. In other schools the teachers do not realise what a potential resource they have, or are themselves too little prepared to take advantage of what is available. In a few schools the teacher librarian does lack the expertise or the interest to be of much help in the areas of resource teaching and study skills. However, I think it is important to assume that your librarian can do these tasks, given time and the realisation that teachers really do value their help and concern. If it's true that we learn by doing, then librarians will be no exception. Working together on the development of a school policy will not only help to build expertise but also awareness of each other's needs and abilities. Of course not all schools have a teacher librarian, but in such cases it is still important to work out what the overall goals of project work

are in the school, so that resource allocation can be made well, and needs for assistance from parents or education department agencies can be identified.

While writing a policy document might be the task of a subcommitee, all staff should participate in the process. A procedure that has worked well for a number of schools writing policy documents is this.

1. Ask all staff members to write down what they believe about particular issues, such as:
   - the value of projects
   - the role of independence in children's learning
   - what types of skills children need to do projects effectively
   - how children should develop the skills needed.
2. Make the writings public so that other teachers have time to read them and perhaps to discuss them informally.
3. Have a small group prepare a summary of the points of agreement and circulate this to staff.

4. Discuss the results in a staff meeting, adding any additional points raised and noting alternative views where teachers defend them.

5. Identify areas where more information is needed, e.g:
   - to fill in perceived gaps in understanding
   - to identify the learning needed to develop children's skills
   - to equip the staff to make decisions about how to ensure that children will develop desired behaviours.

6. Gather appropriate resources for information, seek whatever outside consultation may be seen as valuable, allocate tasks of gathering and reporting information needed and set a time-frame for completing them.

7. Report back, receive any outside guidance desired and establish a working party to draft and circulate the document.

8. All staff respond in writing to the draft. Discuss the draft and responses as a staff and revise it. Ensure that the document is clear (and would be to someone who had not taken part in its preparation), and that it is manageable and realistic so that teachers will not only be able to implement it but will want to. Ensure, too, that it spells out roles and responsibilities in a way that still allows individual teachers to operate comfortably and with reasonable freedom.

9. Circulate the completed policy document and put it into practice.

10. Keep the policy under review and amend it as and when advisable. Share appropriate aspects of its aims and the staff's plans for them with the school community.

This may seem a laborious and even threatening process. It certainly requires a professional commitment from teachers, not only to the task of teaching but to working with others and to being prepared to make one's professional beliefs explicit. However, the result is much more likely to be effective and acceptable than when a document is foisted on the staff from above or outside.

The outcome should be a staff who know where they are going and why, who have a commitment to leading children to reasonable expectations of skill development and knowledge and independence, and an awareness of what they can anticipate from the incoming class at the beginning of the year.

CHAPTER THREE

Relating Projects to Other Experiences

Thinking of a project as only the written outcome of a study leads to a narrow and unsatisfactory approach to what should be a broad learning experience. Children get into the habit of finding answers to questions from resource books when they haven't even considered properly what the questions should be. After all, the less you know about a topic, the less you are able to work out what you want to know about it and how best to obtain the information. It's tempting to have children research why things happen, but while the 'Why' question often masquerades as an open-ended one, it really operates well only when you have enough background knowledge to understand and consider a range of possible options. To overcome this problem, teachers must deal with at least two related issues. One is building up the children's background knowledge through relevant activities; the other is the importance of seeing that a project encompasses more than the written outcome and that there may be other processes and products of learning going on in parallel. The Invent a Country project described in this chapter, and the study of a talkback radio program (pp. 50-51 below) are examples of these broad studies.

Building background knowledge

Because projects may be long and complex, they are likely to display many weaknesses in the writing, but the underlying cause for these won't always be easily recognised. It is very easy to misunderstand the reasons for children's problems if we assume that they have the requisite background knowledge. Take the case of a 10-year-old who wrote a convict's diary about the reasons for his transportation to Australia and what happened on the way. He combined many events into a single

piece of text – a text which was well constructed but not in diary form. Although he had written diary entries in school before and had kept a personal diary for a few days (a rather typical experience for many of us), he hadn't really grasped the distinctive nature of the diary genre. Perhaps his previous experience of trying to catch up on the days missed out was even counterproductive to controlling the genre. He also gave as the reason for his transportation an attempt on the life of Governor Phillip. I assumed that he had simply failed to realise where the events in his text were taking place. In fact, as I talked with him, I discovered that it was his lack of understanding of what a governor was which had led him to misread the resource material he was using and to treat Arthur Phillip and Governor Phillip as two different men. This type of confusion in concepts underlies many of the difficulties which show up in children's writing.

Inadequate background knowledge may show up in several different ways. When the work includes 'great slabs from encyclopaedias', it is frequently because the child lacks confidence in understanding the material, perhaps to the point of copying it out and hoping that the shallowness of understanding won't be noticed. Very likely, however, the child does not realise that the ideas are not properly understood. I have always claimed that if you can't explain an idea to an adult who lacks background knowledge in the area, then you don't really understand it yourself. That was certainly my diagnosis in the case of a teacher trainee who had plagiarised heavily in an assignment and who 'couldn't put it any better than he had.'

Shallowness, confusions, and unrelated pieces of text are other signs of a lack of background knowledge. Sometimes selection of an inappropriate genre may also cover deficiencies of knowledge, either of content or writing styles. The most common of such problems is to choose to write in narrative form when expository discourse is called for. In many instances children can be forgiven for this because in their classes little attention has been paid to developing the range of genres for conveying factual information. In addition they have been exposed to a large number of published informational texts which make the same mistake. It seems to have been a common belief amongst authors and publishers that young children couldn't handle information unless it was diluted into a story. This established a self-fulfilling prophecy, with so little information in many such texts that children were unable to distil out what facts there were. Basal readers were amongst the worst

culprits in this conspiracy against learning. Fortunately, however, there is now a steady stream of published work that beautifully demonstrates the range of expository genres. Using these in literary encounters with children will help to overcome the weaknesses in their own writing, making them better at both reading and writing informatively.

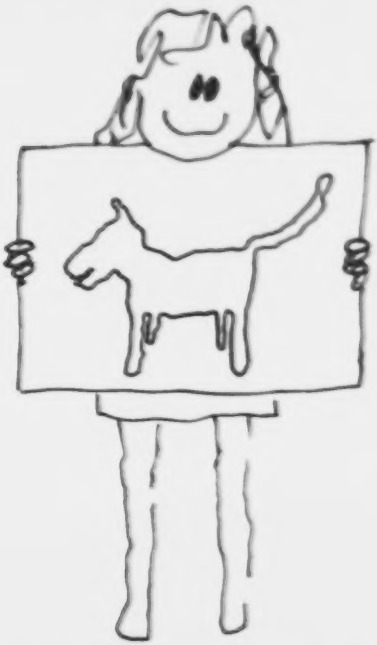
In some cases, knowledge of a particular writing form may develop efficiently as children undertake it, but usually it is necessary to demonstrate the distinctive features of a genre before expecting children to attempt it. The recent PETA publication, *Writing for Life*, edited by John Collerson (1988), is one source of information for those wanting more effective instructional techniques for varied writing types. Learning different ways to present work is an important feature of developing project skills and one which needs to be planned for if you are to avoid stereotypes and an overemphasis on headings to the detriment of the rest of the work. Learning such skills is as much a part of background knowledge as the content of the study.

Inventing a country

One of the most useful projects I have ever set for children, both in benefits to them and for what it has taught me about independent learning, involved asking them to invent a country. The first time that I tried it was with 11- and 12-year-olds and I think it is at its most effective with children of about that age, though it has succeeded with younger ones. As that first class worked, I discovered what a lot they didn't know which I had assumed they would. I had asked them to cover all the important features of the country to inform someone who didn't know anything about it. They should deal with both the physical and the social-cultural geography of their country and with its history. As they would need many maps to convey information, they should make a template to save redrawing the map each time.

My first problem was coping with the shapes of the countries drawn by many of the children. A number wanted to make their country (most often an island, though that wasn't a requirement) look like a head or a plane or some other recognisable shape. I battled with this, thinking on the one hand that if they were going to invent their own country they had the right to give it the shape they wanted, but on the other hand feeling that there was something rather too childish about the work if it came out like that. I finally decided that choosing the shape of some other thing as the map shape indicated a level of thinking that did not promise success in the task, and I persuaded such children to study some countries in their atlases and adapt one for their own maps.

This illustrates a significant issue in project studies. How do you balance the teacher's perspective on what the outcomes should be with the children's perceptions? In this case, the cute map shapes could be interpreted as diagnostic information for the teacher – at least I made a prediction that the children who chose them would not think at a sufficiently high level to produce good work for the rest of the study. I'm not sure that this was a correct prediction; certainly it won't apply to all children. Two of the class were very upset at my denying them the use of their first designs, and since I was not certain I was right I agreed to let them carry on. Not many days afterwards they came to me and asked if they could change their maps as they 'weren't working out.' I'd like to be applauded for not saying, 'I told you so.' Instead, I asked what was not working about the maps. Neither child



could give a reason, but I think they had probably just begun to feel that the idea of making your country look like a head or an aeroplane was immature compared to the work going on around them. In future years, during the explanation/negotiation stage of the work, I simply pointed out the need to make the map look as realistic as possible and noted how unconvincing a map of a country shaped like a ship, for example, would look. It's always best to negotiate a task in such a way that you can reduce the likelihood of children being disappointed in their efforts.

As the children began working on presenting different types of information on their maps, I found that many of them revealed considerable and unsuspected ignorance of how geography 'works'. For example, many of the maps of relief and drainage that were brought to me showed that the children didn't really understand how a river relates to the contours of the land. Some were so confused that they drew rivers starting on one side of the country, flowing up over mountains and then out to the sea on the other side. Many rivers flowed across rather than down what those who could read a relief map would

have recognised as a valley. It is tempting to despair in the face of such huge gaps in knowledge and understanding as many of these children revealed, but fortunately I was able to view the problems in a much more positive light.

Having a desired goal in view and needing to have skills to attain that goal sets up the most effective kind of motivation for learning. Children who want to know, and know what it is that they want to know, are easy to teach. In this case I was able to show the class the implications of some of their relief maps. They needed to go back to the principles of how water flows. We took buckets of water out onto slopes in the playground and made predictions about where the water would run if we poured it from a given place. Not surprisingly, the children's predictions were very successful. They were enthusiastic about the experiments and delighted with their success.

One of the things we must always be sensitive to is the difference between the ways of knowing that learners can have – for example, the difference between knowing how and knowing that. The children I was working with had practical awareness of how water flows but did not have the level of knowledge to transfer that understanding to the more abstract level of drawing or interpreting maps. Studying examples of relief maps helped but was not enough for all the class. Two other procedures covered everyone. I used overhead transparencies to present maps of land contours and then added overlays to introduce the rivers after the children had predicted their courses. The other technique was to make a model of an island in clay, agree on where the rivers would flow and then introduce the contours by taking slices at set and evenly spaced heights with a piece of fine wire. Naturally, while we were looking at the contours and water flow, we studied erosion and the different ways it is caused.

These practical experiences ensured that all the children in the class understood what contours are, how they relate to the shape of the land and how they can be either the cause or the result of drainage. You might think that this was a rather elaborate performance to get across some fairly simple ideas, but I believe that we often underestimate the long-term value of such extended studies. The understanding the children obtained from these activities gave them a great deal of security, satisfaction and confidence as they tackled the rest of the project, and their enjoyment had benefits well beyond providing motivation for the activities themselves. Experience in depth with one kind of map

led easily to learning about other types. Unless we ensure that children learn new things with a conviction that the knowledge will never leave them, we may be wasting much of the time we put into project studies.

The outcomes from the Invent a Country project can be so extensive and so far beyond the range of what a teacher would plan or predict that there is little point in my trying to delineate all that came from this example as it developed. Children had enormous fun as they constructed histories for their nations, which included such gems as:

> 1756 Death of the tyrant Ward — a year of national rejoicing declared.

Some concocted elaborately interwoven histories that linked their countries in a long series of concatenated wars with the countries invented by friends. As they explored history in these ways they

searched for information to give credibility to what they were writing. In effect they gave their inventions external validity by connecting them with known people and events from the real world. Thus Captain Cook might have passed within a few hundred kilometres of the land without being aware of it, or some noted voyager might have been credited with its discovery (with, of course, care taken to get the dates right). Great inhabitants of these countries had often invented things later reinvented by the people to whom we nowadays ascribe them. Usually there was some fascinating explanation of why the 'real' inventor is not acknowledged by the rest of the world.

Much of the success of this particular project was due to the way in which it captured the children's imagination. Few of them failed to respond. The greatest success of all was with a gifted child who had been so far put off using his intellect in school that his typical response was to turn an opportunity to learn into a display of how to avoid work. For example, an open painting task drew from him a piece of black paper with two yellow dots and the caption, 'A black cat in a coal mine'. His end product for the Invent a Country project took up 54 foolscap pages and included an extraordinary development of educational and social systems. He did not slip back to his previous style of performance in the rest of the year.

Projects like this are fascinating for the teacher as well as the children. They create enormous scope for teaching, and the end product is open-ended enough to generate a great variety of activity. When children have thought through the decisions they need to make in constructing a whole physical and economic geography for their own countries, they are much better equipped to understand the related facts of real countries. Projects can serve to help form generalisations in this way, or to give examples of specific aspects of wider studies.

CHAPTER FOUR

The Role of Parents

I found a friend copying out notes from a resource book on palms while his son watched television.

'What are you doing?' I asked, knowing full well what was going on.

'We're doing a project on palms. Palms! Why couldn't he have chosen something sensible like 125cc motorbikes or cricket?'

'But why are you doing it if it's his project?'

'So we don't get into trouble!'

Teachers may bemoan the fact that a child's work shows obvious signs of parental assistance, but to what extent that assistance is legitimate in a school project is a question which many of them have not considered in any detail. Sometimes what appears to be the product of outside help may actually be the result of the child having had much more time than usual to complete a task and showing a level of application and polish not previously seen. More often, however, the apparent help really was given, though that is not necessarily a bad thing.

What is bad, in my opinion, is when the outside assistance is given deceitfully — when child and parents know that what is presented in school as the child's work is really a joint effort, and well above the child's current level of thinking. This is bad for moral development and bad educationally if it obscures from the teacher the real instructional needs of the child. Much of this type of mistaken intervention is caused by inadequate understandings of the role of project work in education and inadequate communication between school and home. Teachers may not have worked out what their objectives are for particular projects, and even when they have, they may not have conveyed them clearly to their classes or negotiated them, let alone ensured that the parents understand what purposes the work will serve.

Too often parents see the project as an end product which is to be judged by the teacher, and they feel legitimate concern about the effect of that judgement on their child's self-concept, attitude to school and learning, and subsequent learning. Their help with the project may be designed to soften the blow anticipated if the child performs poorly in a daunting task. Many parents feel real pressure from the school's demands on their children – particularly in the case of projects because they are more substantial than most of the homework that children do. It is also more difficult to be sure just what is required, and so a project is more likely to cause panic in the household. Parents may wonder just what their kids do in school all day when they have to do such a large part of their project work outside school hours. But in many cases the amount of work done on projects at home is a symptom of insecurity with the topic or task which has caused the child to waste what should have been an adequate time allocation at school. Alternatively it may reflect insufficient monitoring of progress in class. Setting intermediate goals and checking on their attainment should reduce this kind of last-minute pressure.

Parents often don't know enough about the topic which their child is undertaking to be able to provide direct assistance. My friend could have written far more easily about cricket than about palms, but at

least he had resources for the task and knew how to locate them. Sometimes the issue is more complicated, and many parents are virtually shamed into purchasing expensive encyclopaedias so that their children will not be disadvantaged by lacking at home the information needed to answer the questions which beset them from school. But it seems unfair and unrealistic for parents to have to provide this level of material support for their children's education. After all, many families are in no financial position to acquire encyclopaedias of the most comprehensive kind. Yet often when a topic is set for a whole grade level, the appropriate books disappear from the school library long before many children even know what is required of them, and some families lack transport to get to the public libraries before their resources are depleted too.

Parents cannot all be expected to have the skills required for the tasks faced by their children, especially those involving the use of material from multiple sources. Many parents will be forced into stereotypical copying simply because they haven't learnt more sophisticated skills themselves. Secondary school teachers in particular need to ensure that they are teaching their classes the high-level skills of processing information required in their subjects, and that children and parents know what they are doing and what skills are needed.

One primary school class was recently set the task of listing the capital, currency, political system, head of state and prime minister, main religion and economic base of fifteen Middle Eastern countries, and of drawing their flags too. Needless to say most of the children found this difficult. However, a parent who asked rather tentatively at her local library if they had such information got an instant answer: 'Oh, Room 4 at School X, are you? You'll find all the information you want in that book on the table.' Never mind that the book was published in 1965. Presumably some of the information was still current and the teacher didn't really mind if they didn't find out anyway: it was 'only an exercise to develop the children's research skills.' I'm not sure how one father who took it seriously reacted to the teacher's response. He apparently had extensive trade links with the Middle East and telexed his agent in each of the fifteen countries to get up-to-date information from each one!

That may be an extreme case, but it doesn't seem to be completely atypical. It's common enough for children to be asked to obtain information which most adults do not have at their fingertips and which

even librarians find hard to obtain with the resources at their disposal. This may happen because teachers haven't considered what is involved in the task and whether their expectations are realistic or not. If teachers can't readily locate the information themselves, then it's unreasonable to expect children to obtain it. But sometimes the shared exercise of finding information, or of working out how to go about finding the answer to questions, makes a good class study. Parents can relish being involved in a combined hunt for background information if they see the task as part of the teacher's strategy for developing in the class a thirst for knowledge or a fascination with discovery, rather than as a poorly understood and randomly selected quest for trivia.

Projects vary enormously in scope and purpose, but they are well established in the history of education and most parents assume that they know what's involved. You have to get some good stuff from the encyclopedia or from other books, you have to put it into your own words, and you have to present it neatly. Maps, pictures and diagrams are a big help. So are attractive borders around the work. It helps to know how many words the teacher expects. If teachers want parents and their children to have a different set of expectations, they will have to educate them into understanding the purposes they see in project work. Parents need to see the difference between process and product objectives and how different types of tasks lead to different types of learning.

Teachers can also find ways to legitimise parental assistance. They should set up tasks in such a way that parents and children know what part of the work is to be completed at home and what part at school. In many instances at present children do far too much of their project work at home, with a very vague understanding of what is to be done on their part and their parents'. A letter to parents at the start of any project task can tell them what their children are expected to do. It should give some indication of the time allotted to the project in class and in particular of the anticipated division of time between homework and schoolwork. It's advisable to plan for the first few activities to take place completely in the classroom anyway, with homework on the topic confined to gathering information and resources. If the work is a class or group compilation, more emphasis can be placed on learning how to relate different sources to each other and how to combine efforts towards a common goal, rather than having individual children trying to work out these things for themselves.

The results of class and group projects can be shared in a variety of ways with parents. One way is to invite parents to a reporting session at which children present prepared summaries of their findings. However, teachers need to handle this type of session carefully so that it doesn't place undue pressure on the children. Some kinds of projects can be used as material to send home for reading, but a great deal of trust must be built up first so that parents avoid making unfair comparisons among children's work. Only brief projects with a controlled structure are suited to this way of sharing.

When parents visit the school they should be encouraged to read some of what is on display. It's useful for them to see what their children have been learning, and encouraging to all concerned when an emphasis on careful organisation of well-selected information is apparent. Too often only a few children in the class really grasp the importance of the ideas studied. Effective teachers make sure that all children in the class feel confident and satisfied about what they have learnt. Parents, too, benefit from this awareness when it is shared with them. Certainly it builds rapport between home and school when parents can see that their children are involved in a planned strategy of skill development with a deliberate thrust towards confident independence in learning.

CHAPTER FIVE

Facing up to Plagiarism

Even experienced adult writers constantly use the ideas of others in their own writing. Like most other writers, I have published the work of others in my own name. I don't mean that I have deliberately cheated, but undoubtedly ideas derived from others have appeared as my work. In some cases I have simply lost track of whether or not an idea was originally mine. At other times I have worked with something in such a way that I would claim a right to use the idea although I wasn't the first to use it. In some cases, words that others used first continue in my version even though I've rewritten the material many times and think that I've developed the notion beyond its origins. Naturally, whenever feasible and appropriate, I acknowledge the sources of what I borrow from others. Nobody wants to be guilty of plagiarism.

Mind you, not everyone knows what it is. One tertiary student said in defence of her flatmate, 'I know she didn't plagiarise because I helped her write it.' Another, who had just admitted that she had copied notes from a resource centre and been told that it was plagiarism, indignantly declared, 'I'll have you know that I've never plagiarised in my life!' Perhaps the ultimate in my experience was the tertiary student who, when I pointed out how blatant was the plagiarism in her assignment, said, 'I didn't know she'd done it' – 'she' being her mother, who had done the assignment for her. The most fascinating case of all, however, must be the famous U.S. university which admitted guilt and settled out of court a claim from another university that it had plagiarised from the latter's staff handbook on plagiarism!

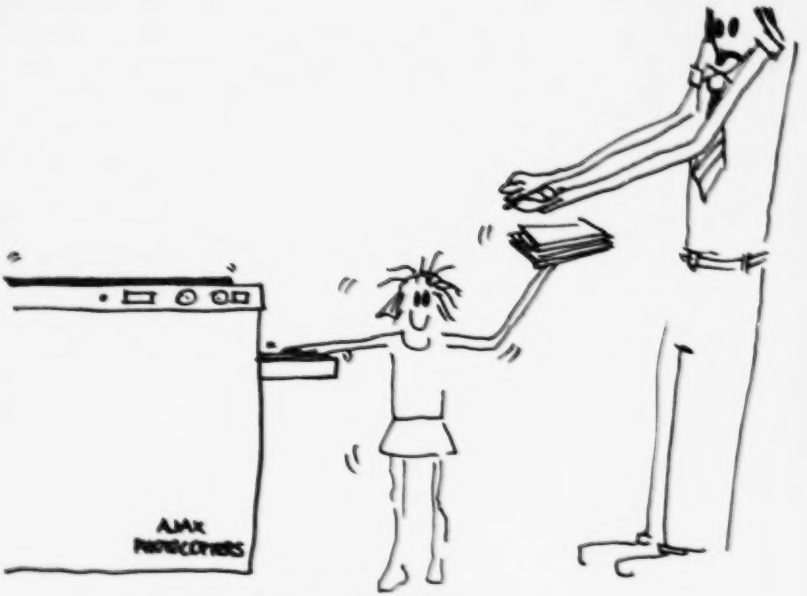
What should teachers do about plagiarism in student projects? Probably the first issue to look at is whether the task difficulty is causing the problem. The habit of copying great slabs from encyclopaedias is so well established that John Collerson (1987) could name a conference paper after it. As he put it:

> If the child is to write the text [of a project], what does he write? Part of the problem is that children are often trying to come to grips with information that is new to them or that they only partially understand. They turn to sources like encyclopaedias and other printed texts and they find that it is all there — or it appears to be. They read some of it — or they try to — and it sounds good. Who are they to try to improve on it? So it is not surprising that many children just incorporate some of the source text directly into the project.

Collerson points out that in many cases children have learnt that it is the appearance of the work that seems to be of paramount importance anyway, and so their main concern with the text is to have neat bits to go with the diagrams and pictures.

One response we should make to this problem is to look at the legitimacy of doing projects that do use others' ideas. We put extraordinary demands on children when we ask them to put things in their own words. In fact we probably misrepresent our concern if it is seen in those terms. We want to see what children know and we ask them to use their own words more to show that they know what they are talking about than as an exercise in rewriting. Often children do not have access to other sources of information that would enable them to come up with a new synthesis, even if they had the maturity of thought to do so. Instead, a precis of the information from a few texts written at their level of understanding is all that can reasonably be expected.

The age of ready access to photocopiers has changed the nature of project writing for many families. A recent Year 5 project on 'Australian Animals' required the children to produce individually a picture of each animal accompanied by some writing. One parent complained that X would do best because his mother worked in a library and could photocopy bits out of books for him all day. While situations like this may be sad and undesirable, they do point out the need to come to terms with the new technologies. Not long ago a secondary school



. . . AND ALL HER OWN WORK

student seeking information on Australian animals used the modem on the family computer to access an American database. He found information on echidnas so recent that it had only been entered by the Smithsonian Institute three days before. He might very well have been the first person in the world to have accessed that information. How fatuous it would be to ask this student to put the information 'in his own words'. What would he gain from such a pointless transformation of technical data?

We must acknowledge that many of the skills that we need in using information do not require us to transform it. We may simply need to reorganise information and utilise it for our own purposes without needing to rewrite it. If our use of project studies is to continue to meet educational needs, we must adapt our thinking to the real uses of information around us, and adapt our task setting to suit. Learning to acknowledge how you have used and built on the words and ideas of others may be more important than an emphasis on using original ones. Perhaps in our laudable support for young writers we have got

carried away with the idea of the child as author. Being an author, rather than a writer, demands an originality of thought that children simply cannot attain on most occasions.

We need to help children get a clear view of what is expected of them. If we want them to take information from text sources but put it into their own words, then we have to ensure that they understand what is involved in doing so. Most teachers will have to think this through very carefully to establish just why they want the children's own words and just how the material should be transformed. Presumably the desire is to ensure that the child really understands the material. If so, teachers must do far more than insist on children using their own words. They must provide a range of material and help children to extract the facts or information from it. Then children must use the ideas, probably in oral activities first, and become familiar with them, so that what they write is not a direct culling of ideas and terms from the original but a representation of what each one now knows.

CHAPTER SIX

Developing Children's Research Skills

One of the major concerns of this book is to help teachers to develop children's skills in seeking and using information. The section on data gathering in the next chapter, 'Getting Clear about Projects', is aimed specifically at developing such skills and the theme is taken up in a number of other places. However, there are some aspects of developing research skills which I'd like to highlight.

Even though I think that research skills are a very important area of children's learning throughout their schooling, I see some danger in focusing on them as a separate issue. Any search for information is a search for *particular* information. It is specific to particular needs at a particular time, and it may require adjustment of known procedures to deal with unfamiliar types of texts or forms of data organisation. Therefore, learning to research means learning to be adaptable in locating and using information, rather than learning a set of operations and how to apply them. If you make the skill, rather than what is being done with it, the focus of instruction, there is a good chance that it will not be learnt in such a way that children can transfer it to other situations where it may need to be used in a slightly different way.

An example is the commonly discussed skill of scanning for specific information. (In fact I doubt that many teachers really do teach scanning in a thorough way, but it is often given prominence in textbooks.) Readers who need to locate some specific item should do so in a strategic manner, using their knowledge of how information is organised and aids such as an index, rather than exhaustively running their eyes

over text hoping to find that what they are seeking leaps off the page at them. Scanning is an inefficient tactic unless it is employed as part of a procedure which narrows down the places to look. In addition, scanning is often used to locate answers to specific questions, such as the date of an event, and a child can easily be misled into grabbing at the first date found in the text without checking the sense to make sure that it really is the one sought. Some procedures, such as the use of S.R.A. comprehension cards, lead to children racing to find details rather than learning to study and understand.

However, as long as teachers realise that they must be careful to help children understand how and why to use particular research skills, so that they learn to be flexible as well as efficient, it is worth identifying here some of the most useful things to know and to be able to do. Many of the necessary skills will be learnt most effectively in the course of project studies. Some project work can be planned to include the learning of skills, and some can be planned so that teaching is directed to particular skills which the teacher believes all the children need to master at that stage. A further option is to have a co-ordinated plan to teach skills at gradually increasing levels of complexity as children progress through the grades. Working out what should be covered at different stages can be done as part of the development of a school policy already described (pp. 14-16); but some starting points for systematic teaching of study skills are suggested below.

Instruction in study skills should start from the beginning of schooling. Of course most children will already have begun to develop many relevant skills when they begin school. For example, they can be expected to recognise when an utterance is in a normal question format, but they will not necessarily recognise when questions are indirect speech acts, as in 'Is someone talking over there?', which older children would recognise as a teacher's way of saying, 'Be quiet.' A principle arising from this is that instruction starts both from what the children already know and from what is useful for them to know now. Thus the program can start with oral language skills, rather than waiting for the children to reach the level of competence in reading and writing at which they will make more use of study skills.

At each level of schooling the teaching staff should co-ordinate efforts to build on previous work. The library will often be the best place to do the teaching and the teacher librarian the best person to do it, but it will always be more effective if the librarian and the classroom teacher

work together. As a simple example, it is much better for the study skills program if children have met or reviewed the concept of number lines in their mathematics program just before the concept of time lines is introduced, and this should be followed by classroom activities which make use of time lines in learning and displays. Any teaching of study skills must be co-ordinated with other work and supported by activities which apply what has been taught. In addition, the library lessons should deal not just with the aspects which are specific to the library (location and accession skills) but with content planned for the classroom science or social studies program, for example.

The following plan for sequencing study skills is based on a proposal developed by primary teacher librarians in the Townsville area. I've used the term 'level' instead of 'year' or 'grade' because of the differences between States in their classification of children. Of course, many of the concepts listed can be introduced earlier than is suggested here: what is important is not to have an ideal sequence but to have reference points for ensuring children do learn a comprehensive range of study skills.

Library and location skills

Level One

- Library layout – Fiction/Junior Fiction/Non-Fiction.
- Parts of a book – title, author, illustrator, call number, end papers, half-title page, title page, book card (or other borrowing method).
- Care of books and other materials.

Level Two

As for Level One plus ...

- Parts of a book – contents, index, chapters, hardback, paperback, spine.
- Simple book making.
- Classification – introduction to selected Dewey numbers and relation to shelving.

Level Three

As for previous years plus ...

- Parts of a book – publication date, publisher, reference conventions.
- How books are made (extended).
- Using the catalogue to locate books.
- Continued introduction to Dewey numbers.

Level Four

As for previous years plus . . .

- Parts of a book – verso, gutter, text, copyright notice.
- Locating information – in catalogue
  – within book (tracing specific items by using contents and/or index).
- Awareness of simple divisions within Dewey numbers, e.g. pets/insects/sports.
- History of libraries.

Level Five

As for previous years plus . . .

- Parts of a book – front and back boards, frontispiece, dedication.
- How a book is published.
- Locating information – extending use of catalogue
  – detailed contents and index.
- Use of Dewey numbers up to ten classes.

Level Six

As for previous years plus . . .

- Parts of a book – glossary, bibliography
  – editor, compiler, translator.
- Locating information – catalogue, computer files, microfiche
  – cross referencing, vertical file, information from maps and diagrams.
- Understanding of the terms of the Dewey system.

Level Seven

As for previous years plus . . .

- Parts of a book – series, preface, foreword, introduction, appendix.
- Understanding of specific terms of the Dewey system.

Skills in acquiring, analysing and interpreting information

Level One

These skills will be introduced through listening and observing, using books, oral stories, audio-visual presentations and pictures.

- Sequencing.
- Main idea.

- Cause/effect.
- Classifying.
- Listing.
- True/false.
- Alphabetical order (of first letter) and use in wall dictionary.

Level Two

Expand the application of ideas covered in previous year, particularly:

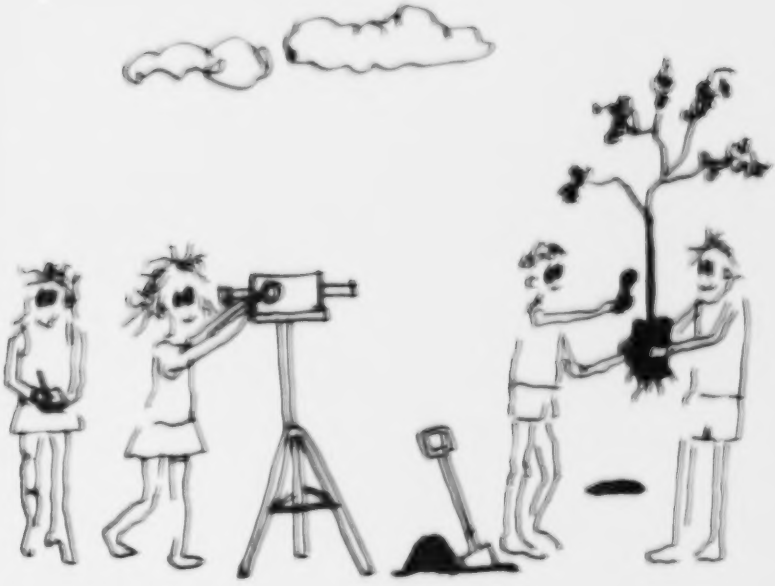
- Sequencing ideas and introduction to who, what, when, where, how, and why.
- Sequencing pictures.
- Fact/fantasy.
- Main idea and supporting details.
- Alphabetical order to second letter and application to simple dictionaries.
- Listing.

Level Three

- Alphabetical order (first three letters).
- Use of simple dictionary.
- Introduction to simple encyclopaedia, e.g. *Blackie's*.
- Making meaningful notes on specific topics – listing items mentioned in a passage.
- Expanding short notes to complete sentences. (Initially this will be a simplified reconstruction of the passage from which the notes were taken.)
- Deriving information from pictures.
- Labelling diagrams.

Level Four

- Main idea in a sentence.
- Skimming and scanning for ideas or specific details.
- Time lines.
- Researching about a person – learning to extract required details.
- Retrieval charts – displaying summary details and reconstructing full form.
- Use of simple reference books – dictionary, encyclopaedia (introductory section on entries in *World Book*), telephone directory.
- Bibliography.
- Use of simple thesaurus.
- Conducting interviews with prepared questions.



Level Five

- Main idea in paragraph (topic sentence) and supporting details.
- Top level structures for informational texts.
- Continued exploration of encyclopedias – varieties, sub-headings.
- Street directory.
- Use of atlases.
- Thesauruses.
- Extracting information from AV sources (using the same procedures as for written sources).
- Using audiotape recording to gather information.
- Extending interviewing skills.

Level Six

- Main idea and supporting details in sequential paragraphs.
- Nominating main ideas for research outlines.
- More detailed use of dictionaries (e.g. derivations).
- Extracting information from maps and diagrams.
- Detecting bias (e.g. in newspapers).
- Distinguishing between fact and opinion.

- Compiling informal bibliography (list of titles available on subject from catalogue).
- Exploration of thesaurus.
- Photography for collecting information.

Level Seven

- Summaries of specific passage (precis).
- Expansion of main ideas and supporting details in report form.
- Deriving outlined main ideas from several sources in outline form.
- Answering specific types of assigned questions, e.g.
  - Trace the history of . . .
  - Compare and contrast . . .
  - List . . .
  - Discuss . . .
- Use of thesaurus, Year Books and almanacs.
- Use of video equipment for collecting information.
- Preparing an oral history through interviewing.

Skills in communicating and presenting

Level One

- 'Morning talks' – reporting to group or class with self-chosen topic.
- Role play/drama.
- Retelling simple stories.
- Listening for a purpose and relating findings.
- Following directions.
- Drawing (particularly to follow instructions).

Level Two

- Development of personal talk.
- Extension of role play and drama.
- Oral discussion of fact/fantasy.
- Arranging pictures in sequence and writing text below.
- Answering questions in written form.
- Organising texts to show cause and effect.

Level Three

- Compiling simple written project with a suitable level of support, e.g. by working to a set pattern, basing work on pictures, or working in a group under teacher direction.
- Oral presentation of report.

- Compiling small book with own text and illustrations in both story and informational styles.

Level Four

- Compiling simple written projects.
- Orally presenting information obtained in compiling a retrieval chart and a time line.
- Introduction to word processing of text.
- Compiling small book or pamphlet using information about particular top level structures of the appropriate genres.

Level Five

- Expansion of notes to paragraph form.
- Preparing grid reference systems.
- Exercises on use of atlas and street directory.
- Extension of word processing skills.
- Writing formal letters to seek information or influence actions.
- Introduction to use of different media for presentations.

Level Six

- Expansion of main ideas/supporting details to paragraphs.
- Illustrating assignments with maps and diagrams and through a variety of media.
- Formal bibliography.
- Presenting reports using a variety of media.
- Using interactive databases to provide information.

Level Seven

- Presenting summaries.
- Report writing with appropriate top level structures.
- Illustrating assignments with a variety of graphic aids and media.
- Formal bibliography.
- Word processing and database preparation for reports.
- Presenting selective information with and without editorial slant.

Discussion among administrators, teachers and teacher librarians about the content of sequential research and study skills programs should lead to children being better prepared for the tasks they undertake in project work and in school learning in general.

CHAPTER SEVEN

Getting Clear about Projects

One of the main reasons why children copy great chunks from encyclopaedias is that they don't know what they are trying to do. The teacher hasn't talked with them about what they are supposed to get out of doing the project. Thus they have only a vague idea of what they might learn in terms of content, and no idea of what skills they may learn in the process. Even children who do come up with an interesting final product may fail to recognise any gains in their abilities derived from the study, which makes it less likely that they will transfer the skill to subsequent studies.

Clarifying the task, clarifying its content and process objectives, and clarifying the steps that lead through to its accomplishment will facilitate the work and increase its transfer value. Teachers have to help children know what they are doing, why they are doing it, and how they can do it. This has to be planned for by the teacher. Simply asking the children how they are getting on does not work. You can ask children to let you know when they don't understand something, but they will grossly under-report lack of comprehension. Adults, particularly in a group, will behave similarly. Most people prefer not to ask a question which reveals that they don't know something; they seem to assume that others will know it and look down on their ignorance. In addition, children tend less to recognise when their comprehension is incomplete. Sit beside upper primary children as they read content-bearing material, ask them if they understand what they are reading, and you will usually get a positive reply. Then start probing into the relationships of ideas in the text, or simply the meaning of some portions, and you will find large gaps in understanding. In many cases the children are not

attempting to cover up, they just have not noticed what they are missing. Teachers should help children get clear about what they are doing at every stage of the work.

Project work will be more useful if teachers and children get clear about:

- selecting the objectives for the project
- selecting the topic for the project
- determining the form the project report will take
- choosing procedures for conducting the study
- obtaining the information to be used
- recording and reporting the selected information.

Getting clear on objectives

It's unrealistic to expect children to fully understand the objectives which teachers might have for a project study. It is at least partly true that if children could understand all the objectives for some studies, they wouldn't need to undertake the study at all. It is the teachers' wider view and deeper understanding that equips them to be the ones controlling the work while the children do it. However, you might like to reflect on the extent to which this is illusory. Either try leading a whole class project to model the procedures to the class, or do an individual project yourself in parallel with the class (though not at the expense of having time available for them to consult with you). In doing so you will become more aware of the difficulties they face, particularly with such things as finding resources. The most significant part of the work, though, might be in determining what your objectives are.

Now it's not enough to say that your objective is simply to show the children how to do a project. That would avoid the point of clarifying what a project is for. I suspect that most teachers who tackle this challenge will find it very difficult to set the objectives for their own projects. Much of that difficulty will stem from the fact that virtually every scholastic project we do is set for us by someone else. In school we did projects as and how the teacher determined, often with a sense of following a preset pattern. In college or university, teachers in training find themselves doing assignments with many of the same features as the school project, and very likely with the feeling that the work is merely another hurdle to jump rather than the kind of learning

experience they would select to further their own development as teachers. Trying to write objectives for your own projects may help you to develop the skills required to write good objectives for children's project work.

Writing clear and useful objectives

Objectives are written in many different forms. This is not the place for a detailed argument about the pros and cons of behavioural objectives or of other formats. Instead, I would suggest seven aspects of writing objectives that I believe teachers should bear in mind as they plan project work.

1. Be realistic about what is achievable.
2. Consider both process and product objectives.
3. Employ expressive objectives (p. 47 below) as well as performance ones; i.e. recognise that you can't specify in advance everything that will be learnt.
4. Base your objectives on thinking how the children will become better language users and thinkers than when they started the work.
5. Negotiate the objectives, at least in part, with the class.
6. Share the objectives with others: children, fellow teachers and the administration, parents.
7. Be ready to adapt and modify objectives as the study proceeds.

Realism in objectives

You can err on both sides of the target of realistic objectives. One danger is that the work is so grandiose in intention that children cannot hope to achieve what is expected of them. Fortunately in such cases the children are not likely to have been let in on the nature of the objectives anyway; the more likely result is that teachers lack a sense of direction themselves. If you have unrealistically high expectations of what can be accomplished through project work, then you may back off developing better approaches to projects because you've seen that they 'don't work'. Alternatively, objectives may be set at such a trivial level that nothing of value can be gained, and so the incentive to go on using projects as a way of working is lost. If the purpose of doing a project

is not clear, it becomes merely an exercise using up time and resources, sapping motivation to learn.

Realism in objectives probably comes from experience, but only if you actively take advantage of the experience. Look at what children actually achieve in one study and ask yourself how it compares with what you had intended. Negotiation with the children will help. Encourage children to consider what aspects of their learning they can

transfer to their next study. What do they think they would do differently next time and why? Look at the language skills that children are using to conduct the study and write objectives that incorporate them.

Process and product

Teachers need to be clear that their objectives in project work include children learning both content and processes. At different times the emphasis will shift from one to the other, but both should always be involved. It is pointless to study a topic without the intention of learning useful and interesting information. At the same time, much information is of limited life and applicability. What you learn now will date and some of it will lose accuracy or relevance. Recognising that in itself is useful. But learning through project work is also a matter of heuristic value – children are learning how to learn in new ways. They should be improving their ability to work independently, to evaluate information and to select and report appropriately. As they learn content – the achieving of product objectives – they are also learning metacognitive skills that will allow them to transfer what they have learnt to other learning situations. Teachers have to work specifically in this area to enable many children to make the transfer. Others will do it automatically. We will take up this issue separately in discussing generic processing skills (i.e. those with a very wide application) in the next chapter.

I would suggest that while much of our emphasis in project work is quite rightly on the learning of generic skills and processes and that particular content is often less significant, it is still better for teachers to err on the side of overemphasising the product outcomes (I mean what content you learn, rather than what the project looks like) than to overemphasise the process outcomes. My basis for this view is a belief that children are more likely to develop skills and abilities as a by-product of being fascinated by what they are learning, than they are to master worthwhile content as the by-product of a stress on developing skills. Some of the worst discussions I have experienced have been those dominated by people conscientiously practising all the skills they had been taught in group dynamics. Everyone was so busy trying to be a good group member or fulfil a facilitative role that they couldn't focus on saying or learning anything useful. There are only so many times you can hear someone say, 'Let's have a feeling round,' without becoming hysterical!

Expressive objectives

This term, coined by Elliot Eisner, is a very useful one for teachers to understand because it accounts for and justifies much teaching time that might not otherwise figure very convincingly in a review of the objectives of a study. Whereas behavioural or performance objectives are based on the need to specify in advance what behaviours will count as observable evidence of learning, expressive objectives stipulate that what you are seeking to develop is whatever results from a planned learning experience or activity. They may sound a bit like a cunning cop-out for teachers who can't write 'proper' objectives, but there is much more to them than that. In a sense, it's like shooting at the barn door and then carefully drawing the target around the area that you hit. You can't miss the target because you define it into existence to incorporate what you did achieve.

What the use of expressive objectives acknowledges is that in many instances it is unrealistic to expect that you can identify in advance all that children will learn in an activity and that it is counterproductive to many aspects of learning to try to do so. The danger of prescribing what is to be regarded as behavioural evidence that the desired learning has taken place is that fulfilling the objective *becomes* the objective, rather than learning. By this I mean two things: that what was set as the standard for learning becomes a limiting target rather than a threshold (i.e. a minimum with plans to take any child who can go further on as far as possible); and also that the indicator of learning (e.g. twenty out of the twenty-five multiplication facts from the assigned task correct in Friday's test) becomes the prevailing view of what you are trying to achieve. It is silly to think of that as an acceptable objective for mathematics when you really want the children to know all of them — whenever they need them — and to understand their relationship well enough to work them out if need be, rather than just to recall them temporarily in some isolated test.

If you think of your objectives as including whatever desirable behaviours, insights and knowledge children will acquire from undertaking an activity, it implies several commitments from you as a teacher. One is to encourage maximum engagement with the task, since expressive objectives will obviously be fulfilled better by those who are engrossed in trying to get the most out of it. Another is to monitor and observe carefully so that you can note and record both

what is achieved and indications of failure to benefit from the possibilities of the task. A third is to use what you learn from these observations to refine your planning of future activities.

Planning for gains in language and thinking skills

The idea of expressive objectives needs some qualification, however, largely because it's possible to use the idea too loosely. Many teachers operate as though they think that just doing activities will ensure learning in desirable directions. I suspect that most of them would not recognise this attitude in themselves and that it does not form part of their espoused beliefs. Nevertheless it is common to find an apparent lack of clear objectives for activities, whether we consider written planning or the actual teaching. There is often very little instruction in many areas of the curriculum, e.g. spelling or reading comprehension. There may be much practice and testing, but very little work is done to actually teach ways of using available information to perform these operations. The underlying reason is probably the lack of a clear understanding of what objectives are for, compounded by the painful experience of having to write useless ones while in training. And if you don't learn how to use objectives effectively to guide learning and evaluation, you tend to believe that whatever children get out of activities throughout the year will somehow add up to the requisite learning.

While I don't argue for rigidly prescribing behavioural objectives, I do believe that as teachers look at what they are planning, they should ask themselves, 'In what ways do I want the children to be better language users and thinkers at the end of the activity than they are now?' This is a tough question to answer, but it induces a high level of thinking about teaching. Although we won't expect that all children will reach the same level of competence, we can still ask ourselves how the activity will contribute to the development of all children. If we can't identify potential gains from doing the activity, we have grounds for questioning its value or modifying it to provide for gains. The wording of the question is important too, I think. If we ask, 'What do I want them to be able to do?' we fall into the need to identify specific and perhaps limiting behaviours. If we ask, 'What do I want them to know?' we confine ourselves to a restricted view of what we are trying to achieve. We must aim to develop a wider competence, not just success in the activity itself.

Negotiating objectives

If we want children to fulfil our objectives, the chances are probably increased if we let them in on what those objectives are. Negotiating objectives with a class goes a step further, and if the children have participated in formulating the objectives we can expect a greater commitment to them and a greater interest in the work. In addition, discussion about aspects of content sometimes gives rise to further objectives, and you can ask what would be learnt from a particular activity that is suggested. Nevertheless, I think that children work more effectively if they do not have to negotiate every aspect of what is to be done. Most children do not want to be held responsible for delineating all that they will do and why: having their interests taken into account is usually enough. Teachers can and should retain control over what is done, even though there is plenty of scope for outlining intentions to the children and asking for their ideas.

Interestingly, when children negotiate on objectives, they often come up with mediating objectives rather than terminal ones. They can see the path to the goal better than the goal itself. This is a valuable by-product of negotiation because the intermediate steps are in some ways more important to success than the last ones. This is particularly true for those children who get flummoxed by the complexity of projects and so fail to engage in enough work to achieve anything worthwhile. Getting clear on objectives includes helping children like them to set intermediate objectives so that they have a target for the week's work, or preferably each day's work. One can ask a child to negotiate what will be done in the period of work and help to set substantial but achievable targets. Without such negotiation, many children will fail to get on top of their work and will reach the deadline for submission with little done and less learnt. In addition, negotiation can incorporate discussion with individual children to sort out their particular targets for learning. A child who has produced a beautiful but trivial piece of work may be led to see that the objectives for the next project are distinctly based on mastering the content.

Sharing objectives

Letting others know what you are doing, and why, not only informs them, but helps you to articulate and justify your ideas. As suggested above, children need to be involved if they are to be committed and

have a sense of where they are going. The principal or other senior staff ought to have a sense of your direction too. Perhaps letting them know what you are doing in projects is a matter of 'selling yourself', but it's a healthy form of it, in my opinion. Everyone benefits if principals see the results of high quality work in their schools. You should also share your objectives with the teacher librarian and any other resource teachers available if you are to get the most out of their skills. They may be able to assist in various ways. For example, in one school the remedial teacher started to become involved in developing reading activities that fed into what the children needed to do in their projects. Her remedial program was transformed: the intensive work on items of skill building in isolation was replaced by a constructive focus on extracting and using meaning, with effective skills teaching as needed. Colleagues on the staff may also have supportive or refining ideas, and discussion with them will help you in developing your ideas further, as well as perhaps leading to useful collaboration.

I got a powerful message about the value of sharing objectives with parents early in my teaching career. I was undertaking with my class of 11- and 12-year-olds a study of the first talkback radio program in New Zealand. All the children (except one who wasn't allowed to change his morning schedule) were coming half-an-hour earlier than usual, listening to the program and logging entries in many different categories which we had determined from two pilot study mornings. A vast amount of data was being gathered, analysed and recorded in different formats. It was a novel and fascinating experience and the children were very much engaged. I did have one morning when I wondered how good an idea it was as the callers went on and on about circumcision and I hoped that I wouldn't have to explain. I needn't have worried. One girl asked another, 'What is this topic?' 'Oh, another one on the cleanliness of boys.'

After the first two early mornings I was visiting a friend's place and his lodger started talking about a man he worked with who was disgusted with the education system. He went on to describe the latest absurdity — my project. Without revealing that I was the idiot teacher perpetrating this nonsense, I suggested that he tell the parent to contact the school to discuss his concerns. The parent did contact the principal, who went through with him my two sheets of listed fields of study for the project, which included elementary statistics, binary numbers, data processing, graphing, summarising, validation methods, gist

comprehension, forms of expository writing, etc. It was an impressive list and the parent went away impressed. The next time I talked with my informant he told me of the amazing transformation in the opinions of the bloke he worked with. 'He won't hear a word against the schools now. And you should hear him raving about the stuff his kid is learning at primary school!' I managed to refrain from taking the credit. Oh, and for the last days of the study his son was allowed to come early.

Adapting objectives

If we can justify painting the target on the barn door after we've hit it, we shouldn't have too much trouble with the idea of expanding or modifying the objectives of a study while it is in progress. The notion of teachable moments emphasises that instances occur when children are more receptive to instruction because of something that happens to them while they are learning. Good teachers soon learn to take advantage of these opportunities because they see the greater effects of teaching at such moments. Sometimes one can store up the chance and come back to it when less cluttered time is available, but usually the advantage is greatest if there's no delay. While teachers usually recognise the importance of this, many will not incorporate the additional learning into their planning. But to do so is not cheating; rather it's establishing a more useful record of what took place, thereby increasing the chances of planning for it in the future.

At other times, it becomes obvious in the course of a study that the objectives were either unrealistically high or not sufficiently challenging. They may also emerge as suitable for the bulk of the class but not for all members. Sometimes, as more knowledge is gained, it becomes clear that there are other dimensions to the study which were not appreciated before but are worth including. Then, in each case, the objectives should be adapted to take advantage of the new information. By way of illustration, I might add that one section of this book started as two principles but grew as I began exploring it in writing. I kept going back up, adding a new principle and changing the numbers. Children should understand the validity of this way of learning as you write.

Getting clear on the topic

Whatever topic is chosen for a project, and whether it is chosen and set by the teacher or selected by the child, it is vital that the child knows

just what is being studied. In many ways, understanding the nature of the topic in precise detail is the base for learning the content. And if you know what the project is going to include, you won't be far from having the outline or headings. Often children have difficulty learning what to ignore in source texts because they are not sure of the scope of the study. Many difficulties common in project work can be reduced if the children are really clear about what they are doing.

Teachers can help children develop a sense of clarity by working through a topic with the class to show what should be included and what may be related but should nevertheless be excluded. For example, when preparing a biography, children need to be able to sort out which aspects of the featured life are significant enough to be included. There may be ample material available, but the selection task is only manageable if you know what a biographical report should contain. A teacher working on a biographical project with the class as a whole can set a model that will be easy to follow when children tackle individual biographies later.

Getting clear on the form of the project report

The scope of a project is closely related to the expectations of what will be presented at the end. Teachers need to demonstrate different formats for reports and different ways of displaying information. Learning, for example, that you can present information in graphs or flow charts and learning when they are appropriate devices is a major gain for children who think they can only use some forms of expository prose. Simple reports or articles which can be shown and discussed will serve as demonstrations, especially if the teacher helps children to relate particular types to the reports they have to make. It's always worthwhile for teachers or teacher librarians to gather good examples of report formats to use in demonstrations, for unless children have seen a variety of formats, they will have no basis for selecting the most appropriate.

Teachers will differ in their attitude to whether children should all use the same format or choose their own. Perhaps there is an advantage in introducing a format to everyone at once and requiring that it be used for a particular project, and then introducing a range of other formats to select from for the next project. The display poster format is a good example to get everyone to try, as many display skills can

be taught with it and the finished product will not look disconcertingly large to children about to attempt it.

Getting clear on the project procedures

The emphasis on the end product often leaves children with very little understanding of how to get to that point. However, if they are really clear about what they are trying to achieve, I believe that they will find it relatively easy to learn how to work so as to complete what needs to be done. As you will have noticed, the different aspects of getting clear that I am describing are interwoven, and there are many issues which I could have included under several headings. Certainly getting clear on the procedures to be used depends on being clear about all the other aspects, but here I will focus on the need to take stock of what is known and what needs to be found out.

There are many complex teaching procedures for helping children to learn from expository text. Readers who are unfamiliar with the ERICA scheme of Bert Morris and Nea Stewart-Dore (1984) would be well advised to study it. Their Effective Reading In Content Areas provides detailed procedures for working with children before, during and after reading, and helps teachers use their skills to take children beyond the superficial level of textual understanding.

The simplest effective approach for helping children to take stock of the information they have and to identify their needs for information is the 'Reading for Information Guide' of Yetta Goodman and Carolyn Burke (1980), which I call the 'What I know/What I want to know' procedure. This can be used for virtually any learning experience and basically means making oneself aware of the mental operations likely to be involved in information gathering. I prefer the 'What I know/What I want to know' label, not just because it tells one what's involved, but because information gathering to answer one's questions is not confined to reading for information. This is an important point to get across to children because they often seem to think that only information published in books is established as valid and reliable. The procedure can be modelled by the teacher and introduced to the whole class as part of a guided silent reading activity, and then be employed by groups or individual children whenever it is appropriate.

To introduce the technique, teachers can assign a particular topic for study. Let's take something like the America's Cup. Children can

What I know/What I want to know

1. Identify the topic that you want to learn about. Think about why you want to know about it and what kind of learning you need to have. Do you need, for instance, to learn how to do something, or how to recognise something, or to obtain information that you can share and remember?
2. Make a heading, 'What I Know', on the left-hand side of a piece of paper, and list in note form everything that you know about the topic.
3. Make a heading, 'What I Want to Know', on the right-hand side and list all the things you can think of that you want to find out about the topic. If you have some items that you think you know but you are not certain about, you can list them on the left and put an arrow over to the right-hand side as well, or just list them on the right.
4. Think about where to find answers to your questions and gather resources to use in finding them.
5. Read the appropriate materials with your questions in mind (but don't ignore other useful information) and/or conduct interviews, etc. to obtain the information that you want.
6. As you gather information, check off the things you wanted to know in the right column. Add new questions that you didn't think of asking at the beginning and record your answers to them as well.
7. Decide which of the things that you now know should be recorded and reported to others. Decide on the best way of presenting your information to others and of recording it so that you will remember it yourself.
8. Prepare and present your report.

list on one side of the page the things they know about it. When they have had long enough to get a good sample of knowledge down (it isn't necessary to do this stage exhaustively), ask them to list the things that they would like to know. Allow enough time for this and then start collating ideas for the first column where everyone can see them. Sometimes items from the first column will be disputed by other children or by the teacher. Put these down in the left column with arrows to the right to indicate that they need to be checked. Gather ideas for study in the right column. As you transcribe these, you may take the opportunity to clarify some and to show children how thinking about one item may trigger a connection to some other idea that hasn't been listed.

But what is it about the America's Cup that we might want them to study? What sort of information is relevant? Of course, this topic, like so many others, can be studied from many points of view. At times, especially for class projects, it is worth doing the listing steps first, so that you can see something of the scope of the topic. You may then identify portions of the topic the study will be confined to, or allocate aspects of it to different groups or individuals. In other words, you can either clarify the scope before you do the listing, or use the lists to negotiate and clarify the scope.

Now discuss the types of information that need to be sought and the best resources for obtaining them. You may already have gathered some. Make sure that the possibility of using resources other than reading materials is considered. As I've suggested, one of the problems for children in developing mature patterns of reading is their unselective use of reading to the exclusion of other sources of information. Film and video will convey a lot of information on this topic, and then more effective and efficient skills in reading can be employed to cross-check what has been derived from them. Some schools may well have access to someone who participated in or had some involvement with the America's Cup, and so they could gain information from an interview. If children want opinion or personal feelings, they can also write letters to appropriate people. Take stock of what is being learnt as the data gathering proceeds, and then review and select the parts to be reported. The decision on how to present the information will usually be made long before the gathering is finished.

Once children have been introduced to this procedure as a class, they can be guided to use it individually in their next appropriate piece

of work. It should not be a mechanical routine, but any time that a child is having difficulty the teacher can ask, 'Have you worked out what you know and what you want to know?'

For some children the most important part of getting clear on the procedure of doing a project is learning how to allocate time sensibly and how to make progress throughout the study. Not knowing where you are going is a real problem in learning, but so is lack of understanding of the steps to be taken along the way. Efficient workers on projects outside school often use management procedures to keep track of progress. Likewise in school a checklist of steps taken will help to ensure that the work is being done well. Opposite is a sample list, but teachers may prefer to work through the procedures with their classes and develop their own, perhaps adding intermediate steps. Note that all entries are in the past tense and denote the completion of actions (even when referring to something beginning) rather than being vague indications of what is being done.

Getting clear on the information gathering

Procedures like those discussed above will help to clarify what is involved in information gathering. Perhaps the guiding principle for children in gathering information is to keep reminding themselves of what they want the information for. You can go about data collection in a variety of ways, but there are two significantly different styles. One is to get all the information you can find that seems to have any relevance, and later to select from it the data that you will actually use. The second is to be selective throughout the process, so that you gather as little as possible that won't be used. The first style may seem at first glance to be cumbersome and wasteful, but for many kinds of tasks it is essential to consider everything since you may not be able to grasp the significance of an apparently trivial item until you have the whole picture. (In this type of study children are acting like ethnographers and so should be encouraged to get every detail before it is too late to go back and fill in what was missed. Nevertheless, ethnographers keep short accounts with their data to stop it becoming unmanageable.) The second style is simpler to handle but carries the danger of overlooking useful and important ideas because you have already made unduly limited decisions about what is relevant. I think that teachers can successfully share this understanding with children and help them to keep an appropriate balance in what they obtain.

Project procedure checkpoints

- Topic selected and accepted by teacher.
- 'What I know/What I want to know' completed.
- Reasons for study understood.
- Parents informed of project topic and deadline.
- Sources of information identified.
- Gathering of information commenced.
- Format for project report accepted by teacher.
- Study of relevant library files completed.
- Letters to outside sources of information drafted.
- Letters edited and sent.
- Interviews arranged and proposed questions prepared.
- Information gathering completed.
- Headings for report selected.
- Outline of sections drafted.
- Introduction completed.
- Section 1 (etc.) completed.
- Illustrations selected or produced.
- Summary completed.
- Assembly of project completed.
- Oral report prepared.
- Reports presented.

The question, 'What's in this for me?' is a very useful one for children to ask repeatedly as they study resources. Learning to identify what is relevant and what is not is a vital step in becoming skilled in learning, especially in resource-based learning. One way to help develop this skill is to prepare group activities where, in a brief period such as fifteen to twenty minutes, each group has to locate information on a given topic from resource material provided by the teacher. (A good time

to make use of the teacher librarian!) The feature of the session is that each group should have at least one piece that is focused very much on their topic, another (if possible) that is relevant but difficult to comprehend for the average class member, others which are only relevant in part, and at least one which is quite irrelevant – especially if you can find something on a related topic which isn't useful for the task in hand. Put the emphasis on locating rather than transcribing or processing material, and spend time afterwards going over the decision-making with the groups reporting back.

Getting clear on recording and reporting

Having a clear idea of the format of the report in advance will certainly simplify the tasks of recording and reporting. Children need to understand beforehand what is required of them in presenting their work. It helps a great deal if teachers often talk informally to children as they work on their projects, so that ideas and knowledge are being shared and the children are not in a position where their report is all that the teacher knows about what they are doing. Very often that is the case, and a child's efforts may not be appreciated as they deserve because the written result doesn't necessarily show, for example, how well the child has used the library. Nevertheless children do need to understand that it's often necessary to judge work or make decisions on the basis of the completed report.

Encourage children to keep their working material organised and to develop headings or possible headings under which to start grouping information. Particularly for young children, there is a lot to be said for using a series of questions for the headings. Information pamphlets for the public are often presented in this format, and it is easy to prepare and understand. It also helps to control the scope of the report. Limiting the size of projects is a positive step towards encouraging clarity and increases the likelihood that the whole class will get satisfaction from the work. Help children to understand that the purpose of the report is to inform, and that their report must be 'user-friendly'. Sometimes, an exploration of the styles and genres of report writing will be needed to identify the features of the writing explicitly. Having a clear idea of what the report is to do is the most important step towards writing good reports, but specific instruction will be needed for some children at any age level.

CHAPTER EIGHT

Teaching Processing Skills

In a whole language program, children are seen as being in charge of their own learning. Although a similar view usually applies to children undertaking project work, not all teachers who use projects see it this way. In fact the range of views may run from an awareness that what children learn is dependent on their own processing and abstraction from what happens to them, to a belief that the teacher has merely a facilitative role in a laissez-faire environment in which children take all responsibility for learning. In this extreme view there is little or no place for instruction by the teacher as distinct from setting up the program possibilities. Although this may be an extreme view, it is not far from the opinion of many advocates of whole language who have got caught up in the enthusiasm of their own rhetoric about 'natural' learning. However, one of the features of learning to walk and to talk (the classic examples of natural learning) is the great amount of support or scaffolding provided by those around the learner, particularly the parents. Learners are provided with all the information they need to develop language, for example. Similarly, teachers wanting to get the most out of project work must recognise that they have a responsibility to teach in effective and specific ways to ensure that appropriate learning is taking place.

One of the principles of whole language is that learning is always taking place. The rider to this belief is that the learning will not always be constructive or positive. For instance, it's possible for children to develop inefficient and counterproductive learning behaviours in reading and to actually get into more difficulty as readers the longer they practise. Thus it is a mistake to take the statements that children 'learn to read by reading' and 'learn to write by writing' as implying that so long as children are reading and writing they will be progressing

irrespective of what the teacher does. Likewise, children left to their own devices in project work may actually become less independent as they rely more and more on short-cuts or outside assistance and lose confidence in their ability to achieve the desired results.

There are many ongoing ways in which the teacher can intervene in children's learning, not just to stop it from going wrong, but also to make it more efficient and effective. In this chapter I will explore some of these ways of teaching which apply to all learning and can be seen to affect project work skills either directly or indirectly. The three areas of teacher behaviour I want to consider are set out below: I will deal briefly with the first two and in more detail with the third.

1. Teachers need to observe and monitor children's learning continuously and sensitively.
2. Instruction should be based on an all-day-every-day awareness of children's learning needs and the opportunities that arise for facilitative and innovative teaching of individual children or small groups sharing the same identified needs. At times there may be value in alerting the whole class to a new possibility or extending their understanding of a particular area.
3. There are some generic behaviours which assist children in all their learning, and these should be developed in all children and monitored by the teacher.

Observation and monitoring

Sensitive observation and monitoring is the foundation of good teaching. Teachers who know their children well are better able to detect when a particular child's effort represents a breakthrough or shows signs of a new level of understanding. Good teachers may give quite different responses to what might appear to be the same kind of work from two different children because they realise that while one piece of work betokens unusual effort and reflection from a child who hasn't worked at that level before, the other piece is merely facile and superficial from a child who could have gone much deeper. Incidentally, it is sometimes disconcerting for teachers to find that discrimination of this kind may operate in a negative way too, as children may think it unfair if they are denied the praise given to others for similar work. You have to be open with children in the way you give feedback. Vague praise is not

enough: to be useful feedback must focus on things that enable the child to learn from it. Say what you like about a child's work and why (though not in such a way as to increase the child's dependence on your opinion). Ask the child how he or she got such an effect to increase the likelihood of its recurrence.

As well as recognising what is good work from a particular child, teachers must be aware of what constitutes healthy development in learning. For example, young children who have been reading with joyful intonation and liveliness may suddenly become stilted and read laboriously word-for-word. Knowledgeable teachers will recognise the transition from the emergent stage into the early reading stage of development and appreciate the change as a diagnostic sign that the children are now using multiple cues instead of memory for text. Similarly, a child may become sloppy in spelling and sentence structure as a temporary accompaniment to increased fluency in writing or an attempt to tackle different genres or more complex ideas.

It is not always possible to infer how a child has worked from looking at the end product. Teachers need to observe carefully to see the kinds of process skills children are using as they work on projects, so that instruction can be given as and when necessary.

Always a teacher

Teachers have many roles and being always a teacher does not imply that you are always giving direct instruction to children. Just being there seems often the teacher's only action, but the important feature of teaching at that moment may not be what is happening overtly but what the teacher's role is. You can control, guide or support, validate or confirm without necessarily doing or saying anything. The corollary is that you can reinforce undesirable behaviour by not intervening. The good teacher is always learning more about the possibilities of precise intervention based on sensitive observation.

Sometimes you can set up situations to induce learning needs. For example, a cloze passage might be set as a form of pre-test for a topic of study, with the deletions selected in such a way that you expect the class to have great difficulty. Your purpose may be to induce a desire to research and find answers, not only to the questions posed by the deletions themselves, but also to those raised in the discussion which you conduct to explore the gaps in the children's knowledge.

When teachers realise that the timetable does not necessarily limit the roles that they can play at any particular time, they can become teachers of language skills or generic processing skills all day and every day. Teaching children to be better at project work is not confined to what you do while children are actually working on projects. By their versatile nature projects require skills that are also used in many other types of activity. If project work is to be useful, it must develop abilities that can be applied to other learning, so that they feed into other aspects of the program as well as feeding off them.

Generic processing skills

I am using the term 'generic processing skills' to refer to some of the abilities learners use which can be taught to children to help them both to learn in particular settings and to transfer their learning to other settings and tasks. The term has been chosen after much thought and debate. Obviously these skills overlap with aspects of metacognition, but they go wider than that label does. 'Generic' has lexical connections with 'general', 'generate' and 'genre'. I am using the term partly as a bridging concept between the Whole Language movement and the Genre theorists.

I doubt that we could get full agreement among educators on just what these skills are, and I don't claim that the following list is exhaustive or without overlap. However, it does provide a framework for thinking about ways in which you can develop skills that have wide application.

Prediction. The processes include both divergent and convergent thinking. Prediction involves being able come up with a range of possibilities and also being precise about the likely alternatives. Prediction includes setting purposes, posing questions and foreseeing outcomes. Making predictions will usually be linked automatically to hypothesis-testing and confirming behaviours.

Self-monitoring. The processes include evaluating the nature of one's own purposes and the extent to which they are being achieved, metacognition and metalinguistic awareness (i.e. learning how to understand and talk about what you are doing), relating current learning to prior knowledge, monitoring for comprehension, attending to the text structure or reorganising ideas to fit a personal structure, and taking corrective action when comprehension fails.

Connection. The processes include relating new information to background or prior knowledge, seeing links between ideas whose relationship is not necessarily given, seeing the overlaps between fields of knowledge, detecting or generating puns, irony or humour of other kinds, understanding and using a variety of figurative language, providing concrete or simple examples or analogies, making comparisons, recognising new forms of known ideas, and writing with considerate cohesion.

Discrimination. The processes include seeing the subtle differences in the way in which synonyms are used, recognising when juxtaposed ideas are not clearly related, seeing flaws in the logic of arguments or recognising when premises for arguments are not established, and being able to rank objects and ideas in order of significance.

Visualisation. The processes include imaging or seeing in the mind's eye, mentally manipulating those images, producing visual representations of complex ideas (such as semantic maps, flow charts and diagrams), and recognising both the literal and inferred meanings of analogies, similes, metaphors, personifications and allusions.

Fluency. The processes include risk-taking in reading chunks for meaning, generating divergent and varied ideas, responding quickly to new situations, changing gears to produce draft-style work readily, and recognising the macrostructure of text and the logic of apparent thought patterns in the text.

These generic processing skills can be applied to all aspects of classroom work and teachers can explore many ways of developing them and helping children to apply them. I will now outline some of the possibilities for each of them.

Developing prediction

Prediction is not just a fancy word for guessing. A guess is what one tries when one doesn't know the answer and doesn't have a basis for reducing the possible alternatives. It's better to think of prediction as 'taking a chance on the most likely alternatives.' The implication is that the learner has already reduced the range of possible alternatives by sensible and close attention to the information that is available. Often children do guess when they could predict. Sometimes that is because

they have not developed some of the other generic processing skills, and sometimes it is because they think that is the game the teacher expects them to play. Encourage children to use their background knowledge to reduce the uncertainty in decision-making and to consider the most likely alternatives.

Some instructional strategies

1. Use predictable books. Encourage children to anticipate what will happen next. At times, get them to justify their answers and to check them overtly against what does happen. 'Group Prediction' is a specific form of this activity. Read part of an unfamiliar story or present it in sections on the OHP. Stop and ask children to work in small groups to answer these questions.

- What do you think will happen next?
- How do you think the story will work out in the end?

Have a brief discussion to hear reporting back. Read on, and then stop at another appropriate place. Repeat the questions and see whether or not the intervening action has caused any change in the groups' hypotheses. Note that hypotheses are what you are looking for; you want the children to base their responses on what they know of life in general and the type of text they perceive this to be. The predictions can be repeated as often as seems to be useful, though after a few times you'll probably find it more comfortable to simply get a response from the class as a whole rather than using the more formal procedure. At the end of the story, review some of the predictions that the groups have made and try to help children articulate how they knew when to adjust their predictions, and how they could evaluate whether their early predictions were sensible alternatives. In some cases writing new versions of the story that do go in the predicted direction can be a worthwhile and enjoyable activity. It works especially well when the children are less than satisfied with the ending provided by the author.

2. Consider the possibility of adapting this approach to expository writing. On a smaller scale, much expository writing is also predictable. Children should learn to recognise the form of, for example, cause and effect structures, so that when you read the causal part of the text, they are able to infer that the next section will be an effect, even when they can't tell what the effect will be.

Building awareness of structures in these ways is obviously a part of reading instruction, but you should see that if you help children to make connections, it can also have a great deal of impact on writing, as well as giving practice in important oral language and group skills.

3. Sentence completion. Before you read a passage, choose specific sentences and read only their beginnings. Have children complete the sentences by using prediction. Help them to see that while some sentences are easy to complete, some are not because there are too many possibilities left open. Make sure that you explore some of the examples that are less predictable, so that children are learning to make judgements about predictability and not just making predictions.

4. Calvert Cloze. Marj Calvert, an Adelaide secondary school resource teacher, gave her class short paragraphs which she had typed out from the text that she was reading to the class. She gave them time to practise reading them orally to a partner so that they could join in when their segment of text came up. She paused during her reading and the student with the appropriate text would take over the reading from his or her strip of paper. This activity not only encourages a particular kind of active listening but also helps children to predict the direction being taken by the text.

5. Use appropriate question forms to encourage prediction.

- How do you think the story might end?
- What do you think this character will do next?
- Do you think that this character will appear again in the story? Why?
- What are some of the words you would expect to find in this passage? (This question is especially suited to expository text. Go on to have children group the vocabulary they come up with and label the resulting categories.)
- How do you think this text will be organised?

6. The 'What I know/What I want to know' procedure described earlier (p. 54) is a useful strategy for developing and confirming predictions.

7. Evaluate predictions, but don't overdo overt evaluation of predictions. Often the outcome is obvious and the children will make their

evaluation instantaneously. Nevertheless there are times when you should go into some detail, either to demonstrate or to have the children articulate why a particular prediction seemed inevitably correct, or why it was difficult to predict in some other situation. Remember, you are seeking not just to get the answer right but to develop a generic processing skill with transfer to other learning.

Developing self-monitoring

Much research in the last decade has focused on ways of developing children's ability to be self-monitoring. The emphasis on metacognition and on learning to be strategic in one's thinking has increased our understanding of how to help children to be better at learning how to learn from expository material, though we still appear to be a long way from having much success in applying that knowledge widely. A major reason for this limited progress may be that teachers find it difficult to take up the roles required to help children to think and work independently, and to recognise the level of their understanding or their need for more information. While self-monitoring comes naturally to many children and they retain or enhance that ability throughout their schooling – even when the teaching is not specifically conducive to independence – for other children it is a different matter. They quickly learn to wait for the teacher to pronounce judgement on everything they do. Only then will they know if it was any good or not. They are like the person just back from an overseas trip who, when asked how he had liked Europe, replied, 'I don't know, I haven't got my slides back yet.' Children need to be encouraged to consciously check their level of understanding as they read and listen. They also need to learn how to adjust their talking and writing to take account of the response or predicted response of the audience or readership.

Some instructional strategies

1. Help children to develop skills of active reading, especially in expository texts, by teaching them questions to ask themselves as they read. The following is a reasonably comprehensive set of questions to suit different aspects of active reading of content material.

a) For clarifying purposes and task demands –

- What's in this for me?
- Why am I reading this?

- What do I know about it already?
- What do I want to know?

b) For identifying the important parts of the message —

- How is this material structured? (I.e. in terms of the presence or not of advance organisers, abstracts or summaries, and not just the top level structure of the text itself.)
- What seemed to be important to the author?
- What sections are relevant and important? (Locate by skimming and scanning.)

c) For helping to ensure a focus on the major relevant content —

- Am I retaining focus on my purposes?
- Do I need to adjust my purposes as new information becomes available to me?
- Which parts of this information do I need to attend to most?
- Can I afford to ignore this section?

d) For helping to invent strategies appropriate to variations in text and purpose —

- Should I skim or scan this section?
- Should I read the text or the diagram first?
- What technique should I use for retaining this information (e.g. underlining, notetaking, graphic organiser)?

e) For monitoring the ongoing process to see if comprehending is taking place —

- Does that make sense?
- How does that relate to what I already know?
- How does that relate to earlier information in the text?
- Am I getting answers to my questions?
- Does this information raise new questions that I haven't considered?

f) For checking that goals are being met —

- Am I getting answers to my questions?
- Is this information relevant?
- Is it important?

g) For taking corrective action if failure to comprehend is detected —

- Am I concentrating on the task?
- Am I clear on what I am seeking?
- Where in the text did I lose the thread?

h) For recovering from disruptions and distractions –
- Where am I? *Not* just, Where am I up to? but,
- How far have I fulfilled my purposes? and,
- What information do I have at this stage?

i) For responding emotionally and intellectually –
- How does this affect what I know?
- How does this affect what I feel and what I believe?

It is certainly no easy task for children to take up these questions, but they can serve as a guide for teachers modelling active reading over several sessions of working with texts with children. Children should not be drilled into using them; rather because they typify the thinking of active readers, they should alert children to some ways that they can get more out of their reading, especially when they are seeking information for their projects.

2. Model the active reader roles and questions for children. Read informational text to them and show them how you go about the task. There are real advantages in doing at least some of this reading without prior preparation so that you are demonstrating genuine responses rather than preplanned ones. As you read –

- Comment on any difficulties that you find in the text, without getting bogged down in lengthy explanations.
- Seek to explain any miscues which you detect in your own reading. If you read while children look at a transparency of the passage, they may detect miscues which you didn't notice. I suggest that you don't fake miscues for the sake of making teaching points: this type of instruction always benefits from authenticity.
- Comment on aspects of top level structure and identify the signals or discourse markers which help you to recognise or predict them.
- Demonstrate any strategies that you find necessary to sort out confusions, e.g. going back and re-reading from the point where you had anticipated a different sentence structure, or looking up a key word in the dictionary or glossary.
- Make hypotheses about the argument being developed, or the conclusion to be reached, or the apparent point of view.
- Give evidence for your hypotheses from both the text itself and your own background knowledge.

- Help children to see how what you already know relates to what you are reading.
- Explicitly adjust your predictions as you find confirming or disconfirming evidence in the text.

You will almost certainly find that as you do this modelling the children will start to participate. If they don't come in of their own accord, encourage them to start making their own hypotheses and to compare the information with what they already know. As they become familiar with the procedure, give them passages to work on themselves, perhaps with a partner initially. There are, however, two warnings I'd give about this type of procedure. One is that it can easily become tedious if you try for too much depth to begin with. The second is that you must always remain aware that it is only a means to an end. The goal is more effective gathering of information, not a more self-conscious operation of the reading process. So make sure that in demonstrating the procedure you keep the focus on what you are finding out, with the process itself appearing as a side-effect.

3. Give children opportunities to review how they did a task and to talk about tasks during and after completion. Don't avoid giving your own opinion when children want it, or when you think it will help to show them something that they might not have seen for themselves, but don't rush in to give your view first. Be careful that you don't find yourself having the last word all the time either, or children may decide that it's not really worth listening to themselves or each other since the teacher will give them the 'dinkum oil' at the end.

4. Repeat some activities (in all curriculum areas) perhaps several times, so that children can not only learn to do them better but also learn to evaluate and compare their performaces. Being familiar with the mechanics of a task should allow children to pay more attention to monitoring their thinking processes and learning how to adjust them.

5. The 'What I know/What I want to know' procedure is effective in this area also.

6. Teach children how to recognise the top level structure of text forms and how to identify the various text signal words. Show them, for example, texts where the author has used structures like 'On the one

hand. . . . On the other hand.' Teach them that if they come across the expression 'On the other hand . . .,' they should check their ongoing comprehension of the text to make sure that they have just stored an opinion to contrast with the forthcoming view. Note that writers (including me!) are not always considerate enough to give the first half of this discourse marker and that therefore they will sometimes have to infer the 'On the one hand . . .' themselves. If they don't have a contrasting opinion stored, they should go back, identify one and then check when they get the other view that these really were the two counterpointed ideas. (It's easier to do this type of teaching with a real passage than to try to explain it in this general way.) There are many other discourse markers which children should be able to recognise. Once you have alerted your children to some of them, they should be able to discover other examples in their own reading to share with you and the class.

7. Cloze passages can be used very effectively to teach self-monitoring skills because the deletions can be designed to focus attention on portions of the text that can only be handled well if they are related to ideas in other parts of the text. Again, the key to success is to help children to articulate how they do the task.

8. Encourage the children to set goals for successful performance. Questions such as 'How will we know when we have got good discussion skills in the class?' or 'What would you look for in deciding whether or not you've done a good job in presenting the work in your project?' are examples of ways to get children thinking evaluatively about their performance without putting undue pressure on themselves. Provide feedback, but encourage the children to provide their own too.

Developing connection

Comprehending is a matter of connecting what you are thinking about with your prior knowledge. If you can't make connections you don't comprehend. Researchers have demonstrated, by using deliberately abstruse but nevertheless accurate passages, that we can understand all the words and even the apparent meaning of each sentence in a passage without having a clue what the text is about. Comprehension occurs when we can fit the text into a larger frame of understanding

that gives us the overall picture. What we are doing can be described technically as 'instantiating schemata'; to understand anything we have to make the connections not just with items of information that we have but with our organised knowledge.

Connecting takes many different forms. Some connections appear as if they should be obvious to everyone, but teachers need to be careful about comments that imply that anyone who doesn't see the links must be a bit thick. Often a child is attending to a different feature of the situation, perhaps triggered by a remark from the teacher that was not intended to be seen as significant, and so does not recognise the connection that everyone else sees but perhaps sees something else. I well remember, when I was training, a supervising teacher who asked his class how they could make sure that the holes they were to punch in their papers were centred. Two children came up with brilliant ideas. Unfortunately their answers were airily dismissed, along with all the less appropriate ones. The teacher had the right answer and they didn't guess it. You had to fold the paper in half, make a crease and then align the crease with the centre line of the hole punch. It is a good method, but I'm sure it isn't as good as the two that the children thought of. Ever since, when I want to make holes, I use the teacher's method. To my chagrin I have never recollected the children's innovative ideas.

I believe that we should encourage diverse and innovative connections by children. When they are young they seem to make them automatically. Sometimes these connections are fascinating or humorous because they are naive, but perhaps when we laugh at their cuteness we help to reduce the creativity of children in school. Perhaps we are too obsessed with getting the right answer. As an inveterate and incorrigible punster, I possibly place too much importance on the unusual connections that children make, but I do think that we can only assist children when we encourage them to look for the ironic and the humorous in connecting ideas.

Some instructional strategies

1. Cloze procedures are effective in developing children's abilities to see the relationships between words, as long as teachers help by taking children deeper into their thinking processes, so that they not only fill the gaps appropriately but also learn to do so strategically, with a sense of how they are using their background knowledge and the information in the text to do the task.

Some gaps can be placed to help children generate extended lists of words that could fit the slot. Note that how you use these lists of related words depends on your interest in different generic processing skills. You might stress the prediction aspect or the connection one, or spend time trying to refine the list and be more selective in working on discrimination.

2. Encourage children to note things in the environment that catch their imagination as humorous or ironic and discuss the examples briefly as they come up. For instance, I was amused to see a bus driving around the city with a quote from a pop song on its back to advertise a local radio station. It seemed ironic to say the least to have large letters designed to catch your attention and telling you to 'Keep your eyes on the road and your hands on the wheel.' The examples that children come up with will not always match your own sense of humour, but you can learn a lot about their thinking from their suggestions. Misprints and unintended humorous effects in newspapers and other sources can also stimulate interest. (Incidentally, one of the features of teaching that I think is often neglected is the idea of having ongoing activities, i.e. ones that children can keep going throughout the year once they have been introduced.)

3. There are many games which foster speedy connecting. One which I like is to have children generate words from number-plate letters. Provide a list of genuine letter sequences and get the children to name words which use the same letters in the same sequence with as few extra letters as possible. You can invent your own rules and scoring if you wish, but play the game as quickly as possible.

Developing discrimination

Discrimination is a counterpoint to connection. While it is important to be able to see how different ideas are related and to expand concepts by connecting ideas to new ones, it is equally important to be able to detect subtle differences and to see when ideas are not the same. Children often lack sensitivity to the nuances of vocabulary and of language use in general. Many popular classroom activities may encourage children to think that related words are virtually identical in meaning, and we spend more time finding synonyms than in

discriminating between them. But to say something differently is to say something different. 'Half empty' and 'half full' have the same meaning in one technical sense. They denote the same amount, but we do not use them for the same purpose. If I say to my children, 'Why is the orange juice bottle half empty?' I may be complaining that they have drunk it without permission. If I say, 'Why is the orange drink bottle half full?' I may be indicating that they were meant to have a vitamin C drink and I can tell that they haven't done so. Language gives us remarkable possibilities for comparison and subtlety. We need to attend to this area of children's learning.

Some instructional strategies

1. Cloze procedures set up wonderful opportunities for discriminating between the meanings of words. If you make deletions with care, you can set up situations where there can be several acceptable answers but one which is arguably better than the others. Some teachers seem to think that it is discouraging for children to find that their answer is not recognised as being as good as another. If that is the case, then it requires a change in the teaching to overcome any negative reaction. I believe that while there are many situations where it is eminently sensible to accept a variety of answers, for example when your goal is to increase prediction in the group, we ought to be encouraging an attitude of seeking the best answer whenever it is appropriate to do so. It should be a class or group concern to obtain the best answer it can so that everyone feels that they have got somewhere, rather than simply trying a few alternatives before getting the best response from the child all the children knew would know.

Take, for example, a passage which says, 'The jerboa moves across the desert like a swift shadow. He does not ———, he leaps.' It's clear that both 'walk' and 'run' are acceptable solutions, but rather than accept both, I would ask, 'Why is *run* a better answer than *walk*?' This focuses attention on the issue of discriminating the subtle differences in meaning. Incidentally, in this and most examples of this type of resolution, the actual explanation is a very difficult task. Almost everyone will accept that 'run' is better, but to justify it is not easy. Sometimes people say that it is because running is faster than walking, but that isn't enough. An explanation has to show the difference in what kind of leaping you describe when you contrast it with running rather than with walking. The point is that if you are going to tackle the task of

enhancing discrimination, you have allocate time to explore the differences in extended discussion, making sure that children don't simply fudge their answers because they think everyone will understand.

2. Cloze also gives the opportunity to take extensive lists of words that fit the same gap and to explore the differences between them. (Of course, lists of related words can be generated in many other ways too.) One way of exploring is to try arranging the words in a hierarchy. Thus, if you have words descriptive of size, you can rank them and start trying to sort out whether 'gigantic' or 'colossal' is bigger. The objective is not so much to get a definitive result, but to learn more about the differences between related words and to gain more control over using them.

3. Question in ways that enhance discrimination. For example, instead of settling for asking, 'What does *timid* mean?' ask, 'Is *timid* more like *shy* or more like *frightened*?'

Developing visualisation

Visualisation is a much underemployed generic processing skill in schools. Top sportspeople use visualisation as a vital part of their performance, whether it be a meticulously preplanned action or an instantaneous one. Jack Nicklaus, arguably the greatest of golfers, never plays a shot until he has carefully visualised, or formed a clear mental image of exactly how he wants the ball to fly and where and how it is to land. The coach of Bjorn Borg, perhaps the greatest of tennis players, considered that what set Borg above all his contemporaries was his ability to visualise what was happening on the court. He felt that Borg was better than any other player at seeing the momentary arrangement of ball and players and seeing what shot was needed. Similar abilities mark successful performance in every other sport.

Learning performance is enhanced by application of the same principles. Children need to have their abilities to visualise honed by practice and tuition to increase their comprehension and memory, and to encourage their creativity.

Some instructional strategies

1. Read vivid descriptive passages to children and have them visualise. They can draw or paint to illustrate their visualisation, but make sure

that both you and they realise that the picture produced is only an attempt to recreate the visualisation and not the image itself. Artistic skills will limit the end product, but I believe that lack of imaging skill is probably limiting the development of artistic abilities in most children anyway. If you are going to get high quality artistic response, you need to work on the mental skills of visualisation as well as on artistic technique. Often children have not made an adequate connection between what they see in the real world and what they are trying to represent on paper, let alone connected their mental images with their artistic response. Some children will draw a building with a totally different arrangement of windows to the one they are ostensibly drawing, while others can reproduce amazing detail long after they have left the view.

2. Build up awareness of different sensory information. Give experiences in distinguishing sounds and smells and tastes and textures, and enjoy trying to capture something of the effect in words or pictures.

3. Teach children techniques for representing information graphically, such as semantic maps or webs, story maps and flow charts, as well as techniques for producing different types of graphs. Gather information to graph and discuss the relationship of the graphic representation to the information. Help children to see that while graphic representations don't capture everything included in the data, they may enhance our comprehension or memorisation of it because they give us the chance to work with particular aspects of the information separately.

4. Question children about their images as you read to them, or work briefly with individuals to help them to explore mental images of ideas in the text.

5. Encourage children to relate diagrams and pictures in books to the text itself, noting consonance or dissonance. Help them to see how illustrations can enhance or modify our perceptions of what the text is saying.

6. Have children form an image from a description that you give and then transform it mentally in given ways, such as turning it over or

reversing the sides, changing the colour, adding new features or removing others. They can be asked to record the result in a picture.

7. Explore figurative language to see the difference between the literal and alternative meanings. Children will enjoy depicting the literal meanings of idioms which have a very different intention from that which someone unfamiliar with the vernacular might anticipate.

Developing fluency

It is natural to see lack of fluency as a symptom of poor reading. What is often overlooked is that it is also a cause of difficulties. As Holdaway (1979) has made clear, fluency is not necessarily to be expected in children's independent reading at all early stages of reading development. However, as children come to work on more complex material, the limitations on effectiveness increase if processing occurs too slowly. The better readers are better because they take more risks and thereby put themselves in more learning situations as they read. And fluency applies to more than just reading. Only when children work fast enough are they going to generate a range of possibilities to select from. The novelty and number of ideas learners produce is related to the fluency aspect of their creativity. Laborious writing will produce many valuable results, but it affords fewer chances for learning than the more fluent output of someone who produces more. This is not an argument for reducing expectations of the quality of performance. Fluency is related to divergence rather than convergence, and to impulsivity rather than reflectivity. However, a proper balance of divergence and convergence and of impulsive and reflective behaviour is required in most learning activities.

I have many reservations about the cognitive styles notion. Some of them stem from a belief that much of what is generated by the research that shows different cognitive styles is actually a research or test artifact. The other point that must be made, however, is that we need to use a variety of styles of thinking and operating to perform different tasks and we often need to switch moment by moment from one to another. Producing a felicitous expression in writing requires both divergence (to be unusual enough to catch attention) and convergence (to fit the overall sense of the passage and the reader's expectations) and it would be inaccurate to suggest that one needs to come before the other. Some

educators are promoting the idea of identifying a child's learning style and capitalising on that by matching instruction to it. Although they may be obtaining good results with children, I suspect much of the effect is brought about by increased attention to the learner's needs and interests and therefore increased engagement. I believe that it is a limiting view of teaching and learning. We should avoid getting children to habituate restricted approaches to tasks and help them to see, for example, when it is important to work quickly and with less attention to detail, and when a slower and more considered approach is needed. The difference between first-draft and final-draft writing is an obvious example, but we should note that first-draft writing will also include periods of slow and painstaking work for many good writers. What is vital is being able to change gears to produce fluent responses when required.

Some instructional strategies

1. Set time constraints on some work. You will often find that children focus better on the task and actually produce more of better quality in ten to fifteen minutes than they do when given forty-five minutes. It is particularly beneficial for those kinds of tasks that involve generating ideas. Working to a deadline may provide a useful sense of urgency. (Incidentally, it can also help develop independence as you get children not only to finish the task but to move into the next phase of work by the appointed time.) Besides assisting concentration, shorter sessions enable you to intersperse more sharing and feedback periods. Two periods of group or individual work with an intervening time to report back and be stimulated by others' ideas are likely to produce more effective work from most children than the same amount of time in one unbroken work session. Of course this is not always appropriate, and variety of work styles is important too.

2. Shotgun or rapid writing is a procedure in which children are asked to write without stopping for a short period of time, such as five or ten minutes. If they run aground they can write any filler while they wait for further inspiration. I don't think that this stays enjoyable for many sessions, but it can help in freeing children up and can be adapted by individuals for later sessions of personal writing. I've found it useful in content area work to get children writing down what they have learnt on a topic or to explore new ideas.

3. Creative brainstorming sessions can be productive. Small groups or individuals try to list as many ways as they can think of to do something, to use an artifact, or to identify related sets. A less gruesome version of the creative thinking that gave rise to *101 Ways to Use a Dead Cat* would be interesting. How many different uses can you think of for a clothes peg, a brick, a five-tonne load of sand, etc?

4. Repeated or timed readings. Especially for young readers or those who are struggling for fluency, there are benefits in having them practise repeatedly on the same material. Children can tape-record themselves and listen to the reading of a passage before trying again and again to improve fluency. Teachers working with individuals can time the reading of a page and then set the child an achievable target time to re-read it. A target time for the next page can be set in advance and then a further attempt made. One should not lose sight of the real goals of reading, but increasing fluency and the satisfaction of seeing instant improvement make this an effective strategy.

5. Vary task difficulty to get different rates of work. Help children to see that when the work is easy or familiar they can attack it in a different way from work that demands closer attention. It is legitimate for children to read books that are easy for them, and especially so when they are practising fluency. Encourage children to make decisions about their rate of work and to make their own adjustments.

Generic processing skills and projects

Projects will not take up all the time in the class while they are in progress. Teaching for generic processing skills can go on at all times, but there are benefits in associating their treatment with projects because children can be encouraged to practise the skills in their independent work. Projects are an effective means of learning only if children are learning to be better thinkers and language users, and that requires developing generic processing skills throughout the learning program.

CHAPTER NINE

Managing Projects

The amount of time that projects take up in the program can only be justified if they are done efficiently and are worthwhile both for the content studied and the skills developed. When projects develop language, thinking, and working skills at the same time as they cover curriculum concerns, they are contributing well to the classroom program. Getting these benefits depends on many aspects of planning which have been discussed earlier. It also requires the teacher to manage the work well.

The teacher's management goals will include getting the children to be as self-sufficient as possible in conducting projects. Otherwise perhaps the most important of the process objectives of project work will be undermined. Several aspects of developing children's ability to organise and manage their work, along with the role of the teacher in giving and gradually diminishing support, have already been treated in this book, but there are some additional issues to consider.

Published project materials

So widespread is the cut-and-paste project that a number of publishers are producing a stream of project booklets with photographs and captions, or some other information, ready for children to cobble together into a project. It hasn't been difficult for publishers to locate suitable topics which are likely to be set by enough teachers to make it economically viable for them to publish this 'support material'. Unfortunately much of it actually reduces children's learning because information is presented predigested and they lose the need to chew it over and spit out the indigestible bits.

On the other hand, some of the information brochures and wall charts produced by industries or agencies are superbly presented and highly

informative, and constitute the best resource that children will find on the topic. Such material raises a real problem. Teachers must work out the purpose of having children cull information or choose which graphics to use from material already so well presented that there may be little point in restructuring it for a project, instead of studying and understanding the original. Perhaps we misguide children when they can see beautiful, highly informative presentations of just what they are meant to be studying, yet are still expected to 'do their own work'. It is important that when material of this nature is being used, the children are clear that the objectives of their work or the specific topic are distinct from the resource material in genuine ways.

Teachers need to manage the program during project work so that children get opportunities to discuss the nature of the resources that they are intending to use. Particularly when information has to be obtained from outside sources, such as government departments, quangos, or businesses, advance planning is necessary to ensure that the material is on hand when it's needed. All too often the pamphlets arrive just after the project has been handed in. That is less of a problem when the project is itself a part of the ongoing program than it is for incidental projects or ones isolated from the mainstream of the classroom curriculum.

Children should be able to show the teacher which parts of the resources they have gathered they are going to find useful and which parts they have rejected as irrelevant. Out of these individual or small group conferences teachers can identify common needs for teaching about resource use. For example, it may become apparent that some children need a review of the cataloguing system to locate or cross-reference material, and overdependence on prepackaged resources will become obvious before the presentation stage.

Grouping

While most project work will be done by children operating as individuals, it's sometimes beneficial for them to work as a group or as collaborators whose work will be co-ordinated or combined into a group project. There are many ways to organise groups and I don't propose to give an exhaustive review of the possibilities. However, I do want to suggest that ability grouping is not a good basis for project group work. When mixed ability grouping is used it is common for

children of less ability or drive to get shuffled into trivial roles, whether it is by the more active and able children trying to avoid having their work 'spoiled', or by the slower children themselves opting out. However, children learn from each other, and it is important in this kind of work for there to be good models to learn with and from. It is better to overcome the problems of different levels by good management than to isolate the less able children from the benefits.

Jigsaw grouping

This technique is one of the most effective ways of developing all children's skills and ensuring that knowledge is gained right across the ability spectrum in the class. It is a procedure that can be utilised in brief single sessions dealing with a few concepts or in major studies of complex topics, such as social studies units.

Stage One

a) Divide the topic into approximately equivalent sections. For example, the study of a country might encompass treatment of Physical Geography; Economy, Industry and Agriculture; Political Systems; Population, Transport and Communications; and Culture and Education.

b) Divide the class into groups which are as even as possible in numbers and in the spread of abilities and allocate a topic to each group. (Generally this task is best done by the teacher.)

Stage Two

a) Each group studies its allocated topic. This part of the study proceeds in the usual manner, with the teacher assisting with resources and teaching as needed, and the group working to complete the study by a given time.

b) The important feature of this stage is that the children in each group must take responsibility for everyone in the group understanding the material and ideas being studied so that they will be able to teach others. The group prepares not only displays of its learning but also teaching activities and materials to assist in conveying the learning to others. Probably some practice in teaching the main ideas and in using the teaching materials will be necessary for some of the children. The attitude of the more able children is critical in this procedure. Whereas in other forms of grouping they are often intolerant of the slowness

of those less able than themselves, in jigsaw grouping they learn to take responsibility for helping others to learn what is important. Naturally it helps if the material used in the first running of the procedure is not too difficult.

Stage Three

a) New groups are formed. The 'jigsaw' is the fitting together of one member from each previous group into the new groups. Obviously it's helpful if you have five topics to have twenty-five children in your class, but there are various ways of juggling to accommodate different numbers.

b) Each group member teaches the rest of the group what he or she learnt in the first group study. Teaching materials such as wall charts, flow charts or semantic maps, cloze passages, worksheets or study guides are used by each of the children.

c) If necessary, the first groups can be reformed temporarily to refresh the information for children having difficulty teaching what they have learnt or to answer unforeseen questions raised by other children.

Stage Four

The teacher and class review the procedure and what has been learnt to help establish a firm grasp on both the information gained and the processes used.

Throughout the jigsaw grouping procedure the teacher should pay very careful attention to developing mutual esteem and positive attitudes within the groups. If the children all succeed in conveying information and interesting the others in their jigsaw group, the pay-off in motivation to participate is very considerable.

Assessing group work

Teachers will have their own or their school's policy on assessing and marking children's work, and so I have not given this issue much attention. However, evaluation should always be constructive and enable the child to work more effectively next time. Children should know how judgements will be made and understand the criteria. As far as possible the evaluation should be of the formative kind that seeks to aid the development of the work, rather than of the summative kind that seeks to judge its worth on completion. Bland and general comments such as 'Well presented', or 'You have worked well', or 'You

have not organised this very clearly' add little to children's understanding of what they have achieved or how to improve.

Whatever is done in evaluating individual children's work, there is an additional problem in assessing the work done by children in groups. It is a seductive notion that we should encourage the ability to contribute to a group and that we should therefore reward group efforts with a mark, but I think that the practice is fraught with dangers. Children are usually very concerned about who did what in group projects. To give everyone the same mark may raise grievances from those who did most of the work and even encourage a casualness about participation from those who got a good mark on the basis of others' work. To differentiate between children who were meant to work together to complete a group project is likely to undermine the co-operation you sought to develop. Not giving a mark for such work is the safest decision, as well as being educationally more defensible.

Getting outside help

Sometimes additional resources for a project need to be sought from outside the school. Such resources may include both published material and people who can bring their expertise to bear on children's problems. One project which I have tackled with different classes was to design a shopping centre. The first year we spent some time trying to develop lists of all the factors which had to be considered and the problems that had to be solved. For example, children planned to deal with delivery of goods, disposal of rubbish, parking and traffic flow, what kinds of shops would be essential for the centre to succeed and what others might be included, logos and other aspects of marketing the centre, the aesthetics and design of the building, and its layout and landscaping. They worked individually or in pairs to solve the problems and produce plans and written reports. I was so fascinated and pleased with the results that I took them to a university lecturer in town planning. He in turn was so taken by the work that he asked if he could come out to talk with the class. He spent a whole morning extending the children's understanding of principles of planning and going through the strengths and weaknesses of their attempts.

Two years later, in a different school, I decided to try the project again. I thought long and hard about the possibility of getting the same lecturer to come and work with the children before they tackled the task, so

that some of the difficulties might be avoided. In the end I decided that the children would learn more by working out for themselves what the issues were and geting the feedback and assistance later. In this case the lecturer came in (and was again extremely helpful and validating) part way through the study, when there was still time for the children to take his comments into account. Both approaches worked well, and I imagine that his help would have been highly beneficial at the beginning also. A big factor in the success of this outside help was the helper's real expertise: he knew what he was talking about and got to the point. He treated the class as fellow planners rather than as children uninterested in the details of his ideas. He was genuinely interested in what they were doing and not appearing just as a favour.

With the right people, at the right time, for the right purposes, outside help can be a tremendous asset to the classroom program, whether it involves bringing people into the class or taking the class out to gather additional information from appropriate venues in the community.

Concluding the project

Wrapping up a project at the end is often much like the problem I face in concluding this book. How can one be sure that it is properly finished? Of course, there is no way that everything relevant can be encompassed in a book of this length, and even if more space were available there would still remain much that could be added. Children need to make the same hard decisions to confine what they are covering to what they can handle in the time and space available, but the content should always be selected because it is worth including and of interest. Children also need help to plan their time and adjust the content so that they are satisfied with the end result. The work should not just finish because the deadline has . . . .

References

Collerson, John (1987), 'Great slabs from encyclopaedias', paper presented at the 12th Australian Reading Conference, Sydney, July 1987.

Colorado Springs Public Schools Handbook Committee (1984), 'Continuous Processing Skills Handbook', mimeograph, Colorado Springs Public Schools, Colorado Springs.

Eisner, Elliot (1969), 'Instructional and expressive educational objectives: their formulation and use in curriculum', *in* Popham W.J. (ed.), *Instructional Objectives*, AERA Monograph Series on Curriculum Evaluation No. 3, Rand McNally, Chicago.

Goodman, Yetta, and Burke, Carolyn (1980), *Reading Strategies: Focus on Comprehension*, Holt, Rinehart and Winston, New York.

Hall, Donald (1983), *Ox-Cart Man*, Puffin, Harmondsworth.

Harrison, Leanne, and Allport, Jenny (1987), 'Language strategies for Interactive Science', *Investigating Australian Primary Science Journal*, vol. 3, no. 3, pp. 2-5.

Holdaway, Don (1979), *Independence in Reading*, Ashton Scholastic, Gosford.

Morris, Bert, and Stewart-Dore, Nea (1984), *Learning to Learn from Text: Effective Reading in Content Areas*, Addison-Wesley, Brisbane.

Morris, Ronald (1973), *Success and Failure in Learning to Read*, Penguin, Harmondsworth.

Ward, Geoff (1985), *Reasons to Read*, Australian Reading Association, Melbourne.

Projects have been around a long time. They are part of the classroom's mental furniture and, like familiar furniture, they are taken for granted and seldom examined with fresh eyes. Consequently, in Geoff Ward's view, 'they are among the most abused and ill-considered aspects of schooling'. Children are often set tasks without being given any clear idea of where they are going or how they should get there — let alone any idea of why they should undertake them in the first place.

Reading this book will make it difficult ever again to treat projects casually or make easy assumptions about children's capacity to 'do' them and learn from them. It will help you rethink why and how you might use projects (there are many good reasons). And it shows how you can ensure that children — and their parents — understand what they are doing, so that they not only learn about the content of their study but also develop skills that will be of lasting value to them.

Geoff Ward was a primary school teacher and deputy principal in New Zealand for nine years and had two years as a Visiting Researcher at the University of Auckland before moving to Australia. He taught graduate programs in Reading Education and Primary Language Arts for four years at Adelaide CAE, and then moved to James Cook University in Townsville, where he is a Senior Lecturer in the Department of Language and Arts Studies in Education. He is the Secretary of the Australian Reading Association, author of *Reasons to Read*, and has presented papers at many conferences in Australia and overseas. He also likes to work with children as often as he can. As a teacher he enjoyed project work with his classes and he was delighted to undertake a book to extend his own thinking about the topic.

PETA, the Primary English Teaching Association, is an independent national, non-profit organization of teachers. It has continued to grow every year since its formation in 1972 on the strength of its enviable record of publications.

For information about how to join PETA and a list of publications available, send a stamped addressed envelope to:

Business Manager
PETA PO Box 167
Rozelle NSW 2039
Phone (02) 818 2591 818 2346

ISBN 0 909955 83 2